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AS WE BY JOHN ATKINSON  
SEE ITAccess Journalism  
vs Accountability  
Journalism

I write this in a Seattle coffee bar—my flight home to New York has been canceled due to a snowstorm. As I try to put down these thoughts, I'm listening to the high-resolution masters of the April issue's "Recording of the Month," Sasha Matson's jazz opera *Cooperstown*, on my Pono player using Ultimate Ears UE18 in-ear monitors. I was in Seattle for Music Matters 10, held by retailer Definitive Audio, and this was my first road trip with the Pono since I reviewed it for the April issue. (Bruce Botnick and Charles Hansen comment on that review elsewhere in this issue.)

I realize now that, in my review, I did not say enough about the compelling nature of music played through the Pono. During the long flight out to the Northwest, and now as I write these words, my attention keeps being drawn to the music in a way that rarely happens with my iPod Classic. This happens not only with hi-rez PCM files (and DSD files, which, with the release of firmware v.1.0.5, the Pono can now play), but with CD rips and even MP3s. Perhaps the best way to characterize the Pono player is to say that for \$399, you get a D/A processor almost as good as Ayre Acoustics' QB-9 (\$3250), with a 128GB hi-rez media player thrown in for free.

So it was with not a little astonishment that, while writing about the Pono, I read negative reviews of this little gem in the mainstream press. David Pogue, late of the *New York Times*, wrote for Yahoo.com's Tech pages: "The Emperor Has No Clothes . . . Neil Young and the believers in high-res audio aren't fools, and their hearts are in the right place. But Pono's statement that 'Everyone who's ever heard PonoMusic will tell you that the difference is surprising and dramatic' is baloney."<sup>1</sup> "Neil Young's PonoPlayer sounds no better than an iPhone—no matter what the audiophiles say," wrote Seth Stevenson for Slate.<sup>2</sup>

Do these writers *really* not grasp what Pono is about? And do they *really* hear no improvement in sound quality—not just with the Pono player in particular, but with high-resolution audio files in general?

As I read the reviews, I was struck by just how inadequate they were. I have been involved in audio for all of my 45-year working life—as a professional musician, a recording engineer, a record producer, a magazine editor, and a reviewer—yet I am well aware of how much I still have to learn. I don't understand how the mainstream media will use experts on sports to write about sports, experts on the visual arts to write about painting, experts on music to review concerts, etc.—but when it comes to audio, they commission articles from generalist technical writers. Their listening tests were, in my opinion, incompetently designed, using naïve listeners, and the results didn't support the conclusions drawn. For example, some of the mainstream reviewers compared the Pono player with smartphones. Not

surprisingly, the listeners tended to prefer the sound with which they were most familiar, something I explored in my 2011 Richard C. Heyser Memorial Lecture to the Audio Engineering Society.<sup>3</sup> As Michael Lavorgna wrote, "people who aren't all that interested in the sound quality of the music they listen to are not all that interested in the sound quality of the music they listen to."

So what happened? Neil Young must bear part of the blame. As an outspoken critic of CD-quality sound and of MP3, Young was sticking a "kick me" sign on his back for these writers, none of whom had been bothered by the poor quality of these lower-resolution formats. But also to be taken into account is the herd mentality of the typical mainstream writer. Fred Kaplan<sup>4</sup> wrote me that such writers always make fun of expensive hi-fi gear, while accepting as normal expensive cars, wines, auction prices for paintings, etc. Such writers don't question the market for \$4000 place settings, \$40,000 wristwatches, \$400,000 cars, or \$4 million houses, because such extravagance is supported by the advertising that appears in their publications. No, there is *not* a direct connection between ad revenue and what writers write, but the advertising for luxury goods other than audio confers on high prices a *societal* legitimacy—and no such legitimacy has been conferred on audio. Even with a \$400 audio product—\$400!—a mainstream commentator would be going into unexplored territory if he or she wrote positively about it, no matter how high the actual sound quality.<sup>5</sup>

But I think the issue goes deeper than this. Mainstream technical writers tend to practice *access journalism*; in short, they describe what people say or do: Apple releases a new iPhone, Sony releases a 4k TV, Linksys releases a new router. By contrast, in *accountability journalism*, the writer *judges* what has been said or done. Magazines practice both kinds of journalism; show reports, for example, are access journalism, while reviews are accountability journalism. The first is straightforward; the second is not. Much of what passes for accountability journalism on the Web is actually access journalism: a product is described and its functionality discussed, but it is neither judged nor put in its market context. The mainstream press's coverage of Pono is an example of access journalists venturing into accountability journalism without being equipped with the necessary tools. The sad reality is that in my opinion, such writers just don't know enough to know how little they know about audio, or how much more they *need* to know in order to be able to write a responsible review of a genuinely superb audio product—such as the Pono Player. ■

John Atkinson (JAtkinson@entusiastnetwork.com) was given his first tape recorder 50 years ago this month. He is still fascinated by recording and playing back music with the highest-possible quality.

1 Links to some of these reviews can be found in Michael Lavorgna's excellent essay on AudioStream: <http://tinyurl.com/ptv55f8>.

2 See <http://tinyurl.com/l2xancz>.

3 See <http://tinyurl.com/n57of75>.

4 Fred wrote an excellent defense of audiophiles and high-end audio for Slate.com. See <http://tinyurl.com/ontmwos>.

5 Jason Stoddard of Schiit Audio wrote an excellent essay on the mainstream's rejection of Pono at <http://tinyurl.com/qfb76xl>.



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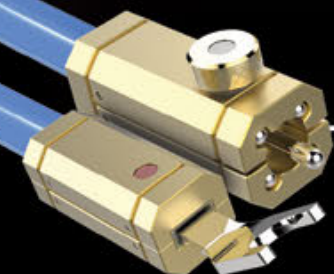
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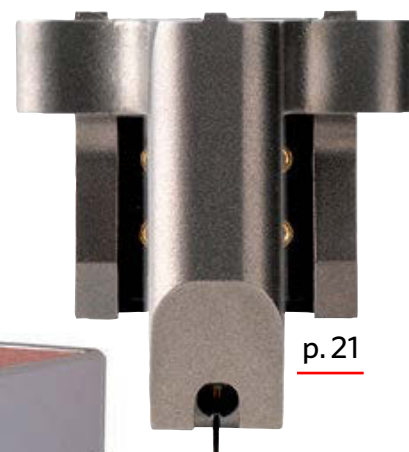
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# LETTERS

## FEEDBACK TO THE EDITOR

### Paul Rosenberg

Editor:

I wanted to pass on some sad news to the *Stereophile* community. Mondial Designs' co-founder Paul Rosenberg passed away March 1, 2015. Paul brought joy, exuberance, and a lighthearted spirit to the audiophile community he loved.

Paul is survived by his high-school sweetheart and wife, Lynda, and his three children, Reed, Zack, and Jenna.

—Rafael Nevares  
rafaelnevares@gmail.com

### Sam, Wes, & Herb

Editor:

Crestfallen and gasping at pp.11 and 19 of your March 2015 issue—the losses of Sam Tellig and Wes Phillips—only to be resuscitated on pp.53–57 by Herb Reichert. Thank God for Herb. No cancellation.

—Ken Perkins  
Sewickley, PA

### Thank you, Sam

Editor,

Having been a reader of *Stereophile* and *Stereo Review*, the magazine that was, for as many years as I can recall, and now well into my 80s, I peck my keyboard to comment. It is sad that Sam Tellig is no longer writing; he brought a personal sense of humor to that which can be very dull to read for the technically uninitiated such as I.

—Brian Bartholomew  
sirbcb@gmail.com

### Sam Tellig? Who?

Editor:

Wait a minute! Sam Tellig is a pseudonym for one named Tom Gillett? Wow, I have been reading his columns in *Stereophile* since the mid-1980s and really had no idea. Is it possible that Sam was also Lars, before his demise? Either way, I will sincerely miss his columns and advice, whoever the heck he is.

—Roger A. Miller  
Asheville, NC  
Tarraga.miller@gmail.com

### Sadness & Sam

Editor:

I read with great sadness the news in the March issue of Sam's resignation. I know all good things must come to an end, but *Stereophile* will never be the same. Sam's stories and reviews were always a joy to

read.

Let me share with you an example of the small impact Sam has had in keeping me invested in this hobby. I rarely buy things based on reviews and blind faith alone, but Sam's review of the Musical Fidelity A300 integrated amplifier, in March 2000, made such an impression on me I had to buy one. I was just out of college, making barely above minimum wage, and George W. Bush had just been sworn into office. Prior to Sam's review, I had been through many other amps and preamps, never satisfied with any of them. The Musical Fidelity was a huge financial leap for a recent college grad. It was worth every penny, and to this very day it sits in my rack as the cornerstone of my system.

My leap of faith in Sam helped me get off the upgrade merry-go-round. Thanks to Sam, there are a lot of us who still love this hobby and keep our *Audiophilia nervosa* in check by laughing the evil laugh and just enjoying the sound of music. I will sorely miss his wit, wisdom, and stories.

—Drew Edmonds  
Seattle, WA  
drew@drewedmonds.com

### Where oh where are the women?

Editor:

It is hard to tell what finally stimulates one to write, but "Records to Die For," in the February 2015 issue, somehow managed to do it for me. I have been a reader since your earliest days, and I'm kinda used to the "pale, male, and stale" makeup of *Stereophile's* writers: individually interesting, talented, bright, and often engaging men—and, to the extent values shine through the writing, often caring human beings. But where on earth is the other half of the human race?

Is there a paucity of women equip-

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**TAKE HEED!** Unless marked otherwise, all letters to the magazine and its writers are assumed to be for possible publication. In the spirit of vigorous debate implied by the First Amendment, and unless we are requested not to, we publish correspondents' e-mail addresses.

ment reviewers? Perhaps, though if it was possible to find a "token" youngster in Stephen Mejias (even if briefly), there might also be a woman out there. But is there not one single woman record reviewer of talent to be found? That, given the enormous number of gifted women musicians and writers, is hard to believe. Women are to be found in *Stereophile*: when they are reviewed as performers, when they drape themselves seductively over a piece of gear, or in the bizarre advertisement for *Stereophile* itself on p.107 of the February issue. How sad if that is the best you can do.

—Peter D. Lederer  
peterdlederer@gmail.com

### Perfect Pitch

Editor:

Thank you, John Marks, for an excellent investigation into the pitch of the Brahms Violin Concerto recordings ("The Fifth Element," February 2015). I have begun checking some of the recordings in my collection, and will for the first time use the speed/pitch controls on my CD player. I would never have noticed the discrepancy otherwise.

Reading John Marks's column always makes me listen to recordings I might otherwise miss. Thanks.

—Dave Shaw  
Australia  
dave.e.shaw@gmail.com

Thanks for the kind words, Dave. When I submitted that column, I had no idea what the readers would think. I am very gratified that many, many people read the whole thing through to the end. Indeed, someone on the Audio Asylum chat board who, in the past, has had no use for me posted that although he had no interest in the Brahms Violin Concerto, he read the entire article, "engrossed" by its detective-story aspect. All I can say is that even though I am still somewhat mortified that I did not catch the out-of-tune-ness of the SACD, when I checked my old LP, it was sharp. Not trusting the turntable I had, I sent the LP to Michael Fremer for verification, and he repeated the result. So I had been right about that sharp pitch. Now, if we can only get access to the multitrack master tape from Cleveland, perhaps someone can do a remix with a more natural balance of soloist and orchestra.

I should found a nonprofit organization: *Peasants with Pitch Pipes*. —John Marks

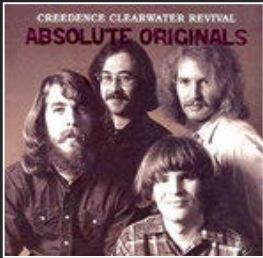
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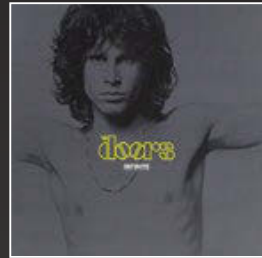
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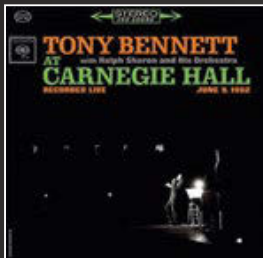
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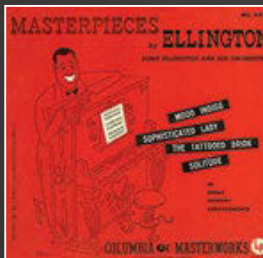
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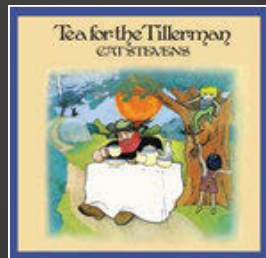
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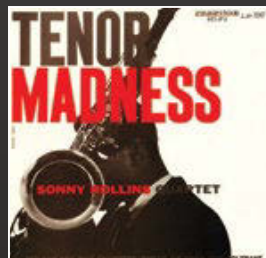
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# INDUSTRY UPDATE

## AUDIO NEWS & VIEWS

### UK: CHISWICK, WEST LONDON

Paul Messenger

Metropolis Studios, housed on several floors of a huge converted tram garage in Chiswick, West London, have become a popular location for hi-fi-related events. I've written of my experiences there several times in the past few years; my latest visit was to attend the first actual hi-fi show at Metropolis.

Although Metropolis Studios lack enough demonstration rooms to run a traditional hi-fi show, that restriction doesn't apply to headphone demos. Prominent Southwest London dealer Unilet and partner Custom Cable (which incorporates a "headphones direct" operation) decided to put on the Headroom Show 2015 the last two days of January. I was glad to be there—the place buzzed with a heady mix of visitors and industry stalwarts.

That I've written about headphones for two successive months might be a coincidence; it also indicates this sector's considerable growth in importance. That said, at least one exhibitor remarked that he thought headphone sales had already peaked and were beginning to decline. However, while sales of headphones as mass-market fashion accessories might well have crested, in my view that's not true of their basic sound quality, which still varies hugely among models.

The considerable growth of the headphone market has led to lots of new models from lots of brands, many themselves new. For example, at Headroom 2015 I encountered the first headphones from leading US cable maker AudioQuest: the beautiful, semi-open NightHawks, designed by Skylar Gray. And if headphones naturally took center stage at a show named Headroom, there were also plenty of amplifiers and DACs intended to help them perform at their best, including the latest version of the Meridian Prime, which will now decode MQA files, and a retro-styled tubed headphone amplifier from Quad.

And there were other delights. One of these was a long chat I had with Alan Ainslie, who has recently begun to represent some very interesting



**Top:** The Meridian Prime D/A headphone amplifier will now decode MQA files.

**Bottom:** Quad's tube headphone amplifier.

components from Japanese computer-audio specialist Melco. I also met up with the Chord Company's Alan Gibb, and was pleased to hear not only that the sound quality of the company's top-of-the-line, Sarum Tuned ARAY cables had been significantly improved, but also that the improvement may be retrofitted to existing cables.

Both exhibitor and visitor turnouts seemed good, possibly in part reflecting the attractiveness of the Metropolis Studios venue. Although the layout, on at least three floors, was less than ideal, I'm sure the ambiance and furnishings of a genuine working recording studio acted as an effective people magnet.

### US: BROOKLYN, NEW YORK

Herb Reichert

Hats off and heads down. Let the passing of Joe Grado (1925–2015), on Friday, February 6, fill our hearts with enduring gratitude for what he brought to the quality and character of the audio industry over six decades—

**SUBMISSIONS:** Those promoting audio-related seminars, shows, and meetings should e-mail the when, where, and who to [JAtkinson@enthusiastnetwork.com](mailto:JAtkinson@enthusiastnetwork.com) at least eight weeks before the month of the event. The deadline for the July 2015 issue is April 20, 2015.

## CALENDAR OF INDUSTRY EVENTS

### ATTENTION ALL AUDIO SOCIETIES:

We have a page on the *Stereophile* website devoted to you: [www.stereophile.com/audiophile-societies](http://www.stereophile.com/audiophile-societies). If you'd like to have your audio-society information posted on the site, e-mail Chris Vogel at [info@XLinkAudio.com](mailto:info@XLinkAudio.com).

Please note that it is inappropriate for a retailer to promote a new product line in "Calendar" unless this is associated with a seminar or similar event.

### CALIFORNIA

■ Saturday, May 2, 5–8pm: The **Los Angeles & Orange County Audio Society** will hold its monthly meeting at **Brooks Berdan Ltd.** (110 W. Olive Avenue, Monrovia). Sheila Berdan, her colleagues, and industry representatives will feature select premier audio components, as well as many audiophile records. **Eastwind Import** will be on hand to offer extraordinary CDs for sale. Enjoy the Ninth Annual Greatest Software Raffle Ever! Win LPs, CDs, and downloads from all over the world. Dinner will be served and parking is free. Members, guests, and visitors are invited. For more information, visit [www.laocas.com](http://www.laocas.com) or call Bob Levi at (714) 281-5850.

■ Friday–Sunday, May 29–31: The **Los Angeles & Orange County Audio Society** will present **T.H.E. Show Newport**, its co-venture with T.H.E. Show Organization and the largest fine-audio show in North America open to the public. Our fifth and most extensive show ever, T.H.E. Show is presented at the gorgeous Hotel Irvine (17900 Jamboree Road, Irvine) for the first time. Once again, join the Society in the hotel lobby or in advance and get free entry to T.H.E. Show for all three days! Current LA&OCAS members get big show discounts. For all information, including upcoming events, please



and with enduring respect for his myriad inventions and for his human fortitude, which together delivered musical joy and aural insight to countless listeners and audio professionals around the world.

Joe Grado was a mechanic, an engineer, an inveterate tinkerer, an inventor with scores of patents to his name, a painter, an operatic tenor, and an old-school American entrepreneur. Joe Grado and Saul Marantz can legitimately be called the Ben Franklin and George Washington of

American high-end audio. Famously, Franklin invented bifocal glasses and demonstrated the true nature of electricity. Not quite as famously, Joe Grado invented the stereophonic moving-coil cartridge, and put countless people in touch with the pleasures of listening to music through high-quality headphones.

Saul Marantz (aka Geo. Washington) helped Grado get his first job in audio, but very soon after, young Joe set out on his own. In 1953, he founded Grado Labs Inc. In

1955, he moved the operation into the storefront that once housed his father's grocery.

Joe Grado's Sicilian-born father was the kind of immigrant hero my own father always proselytized about. Dad told me that European immigrants dreamed of coming to America, starting a business, working hard, and ending up with a modest building with their family name on the façade. That's exactly what the Grado clan did. Sixty years later, Grado Labs is still in the same modest Brooklyn building—

visit our website, [www.laocas.com](http://www.laocas.com), or contact Bob Levi at (714) 281-5850. Or visit T.H.E. Show Newport website at <http://theshownewport.com>.

#### CONNECTICUT

■ Thursday, April 16, 7-9pm: **Take 5 Audio** (105 Whitney Avenue, New Haven) hosts a Musical Evening with Linn's Steve Brothman, featuring the Akurate and Majik systems and all things Linn; with Q&A. Come early and stay late. Refreshments provided. Details at [www.take5audio.com](http://www.take5audio.com).

■ Saturday, April 18, 3-5pm: **Take 5 Audio** (105 Whitney Avenue, New Haven) hosts a Musical Evening with Peter McGrath of **Wilson Audio Specialties** (and his incomparable recordings), featuring the Alexia and the new Sabrina speakers, as well as discussion of Wilson Audio's design techniques; with Q&A. Come early. Refreshments provided. Details at [www.take5audio.com](http://www.take5audio.com).

#### GEORGIA

■ Sunday, April 19, 2-5pm: The

**Audio Video Club of Atlanta** hosts an evaluation and demonstration seminar of latest-generation compact and portable digital audio gear, including DACs for headphone, desktop, and main-system use. Devices included will be several levels of **Light Harmonic Labs'** Geek Pulse gear, including the Pulse, Pulse fi, Pulse Xfi, and Pulse Infinity. Other latest-generation products will include **iFi Audio's** iDSD Micro and Nano. Additional products will be announced prior to the meeting. A locally sourced and designed power

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but out front, there's never been a "GRADO" sign of any kind—just graffiti.

Joe and his wife started out building cartridges by hand on their kitchen table. Then Joe and his nephew John—who joined the company in 1965, and bought it in 1990, when Joe retired—continued to build cartridges by hand. It should be noted that, after building moving-coil cartridges in the early 1950s, Joe didn't choose to ride that invention for fame or profit. Instead, he rejected moving-coil technology,

and instead built his brand and his reputation on the musicality of higher-output moving-iron designs. In 1977, Joe and John and their modest team of craftspeople were hand-making 10,000 cartridges each week.

But while building Grado Labs, Joe never lost touch with his love of fine art, or his identity as an artist. He made paintings and, in May 1981, made his debut as a dramatic tenor, performing a program of Italian songs at Lincoln Center's Alice Tully Hall. Bravo, Joe! Bravo!

Grado Labs began making headphones, by hand, in 1989. Throughout the 1990s, Grado models developed a reputation for being natural-sounding, fun-loving, rock'n'roll headphones to be enjoyed not just as professional recording tools or as "Shush, the kids are asleep!" compromises, but as fully satisfying alternatives to conventional loudspeakers. This was a big step forward for headphones, and a major contribution to the powerful emergence of headphones in today's

supply for the Geek Pulse DACs will be auditioned. More information will be provided via the club's website: [www.a-vcoa.org](http://www.a-vcoa.org). Location: Virtual Properties meeting room (2750 Premiere Parkway, Duluth). For information, contact John Morrison, President, at (770) 330-3919 or [jhm3@bellsouth.net](mailto:jhm3@bellsouth.net); or Chuck Bruce, VP, at (770) 550-1434 or [chucksaudio@mindspring.com](mailto:chucksaudio@mindspring.com). Guests and new members welcome.

■ Sunday, May 3, 2-5pm: The **Audio Video Club of Atlanta**, in coordination with **Canlanta**, is hosting our second

annual Portable Audio Jam. Atlanta and Southeast-area headphone and portable-audio manufacturers, retailers, distributors, and portable-audio enthusiasts are cordially invited to participate. There will be demonstrations by headphone enthusiasts, manufacturers, and dealers such as **Avatar Acoustics**, who will provide the latest **AMR-iFi** portable products. Location: Virtual Properties meeting room (2750 Premiere Parkway, Duluth). Updates are provided on our website: [www.a-vcoa.org](http://www.a-vcoa.org). For

information, contact John Morrison, President, at (770) 330-3919 or [jhm3@bellsouth.net](mailto:jhm3@bellsouth.net); or Chuck Bruce, VP, at (770) 550-1434 or [chucksaudio@mindspring.com](mailto:chucksaudio@mindspring.com). Refreshments will be provided; guests and new members welcome.

#### ILLINOIS

■ Friday-Sunday, April 24-26: **AXPONA presents Audio Con** at the Westin O'Hare, (6100 North River Road, Rosemont). Soak up the sound in more than 125 listening rooms—



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youth and high-end audio markets.

I've bought countless Grado cartridges. And I've always used Grado headphones. Grado's original HP 1 Professional Recording Monitors<sup>1</sup> were beyond beautiful, and extremely expensive for their era (\$595 in 1991); today, they fetch as much on eBay as the most exotic new high-end 'phones. It's impossible to say exactly to what degree Joe Grado influenced the history of audio, but to me, he was a giant.

Of course, Joe's passing makes me sad. But it also makes me even more grateful for all the joy and inspiration his work and inventions have given me. Speaking for everyone at *Stereophile*, I offer our respectful and heartfelt condolences to the entire Grado family, as well as to the dedicated league of Grado workers, craftspeople, and family friends. Joe Grado was one of audio's founding fathers, and his passing marks the end of a glorious era. Thank you, Joe—you shall not be forgotten.

## SCOTLAND: KILMARNOCK

*Paul Messenger*

Atlas Cables was founded in 2001 and spent its first decade under the management of John Carrick, whose recent retirement has triggered major changes in the company. The new managing director, Kevin Kelly, was once an engineer at Linn Products, and places a firm emphasis on engineering. He and Carrick were jointly responsible for Atlas's 2011 initiative to establish what they called the "velocity of propagation" (VoP) in cables as an objective tool to assist in the development of new designs. They discovered that the material used in a cable's dielectric (insulation) had a significant influence on the cable's VoP. This led to Atlas's use, in its most expensive cables, of micro-porous polytetrafluoroethylene (PTFE) foam, which is mostly air and has a much greater VoP than solid PTFE.

That's just one example of a design philosophy that seems rather different from the marketing-led approach of many cable companies. I haven't yet heard any of Atlas's cables, but I was impressed by Kelly's determination to put the company on a firm engineering basis, manufacturing cables largely from scratch rather than simply accepting whatever OEM supplies offer. ■

<sup>1</sup> See [www.stereophile.com/content/grado-hp-1-headphones](http://www.stereophile.com/content/grado-hp-1-headphones).

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■ Saturday, May 16, 9:30am–3:20pm: The **Midwest Classical Record Show** takes place at the North Shore Holiday Inn (5300 W. Touhy Avenue, Skokie). Classical LPs, CDs, and open-reel tapes will be offered for sale. Admission is \$2, and there is ample free parking. Complete details, including a map, can be found at [www.midwestclassicalshow.com](http://www.midwestclassicalshow.com).

## MINNESOTA

■ Tuesday, April 21, 7–9pm: The **Audio Society of Minnesota** will hold its monthly meeting. This month's meeting will feature **Tom Fine**, son of Robert and Wilma Cozart Fine. Tom will join us to discuss the intertwined histories of his parents, the **Mercury Living Presence** record label, and the Minneapolis Symphony Orchestra. He will focus on several important MSO recordings making their debuts on CD in the third Mercury Living Presence boxed set, due out March 2015. The meeting will be held at the Pavek Museum of Broadcasting (3517 Raleigh Avenue, St. Louis Park). Refreshments will be served; guests, visitors, and new members are welcome to attend. For more information about this meeting, visit our website at [www.audiomn.org](http://www.audiomn.org).

■ Tuesday, May 19, 7–9pm: The **Audio Society of Minnesota** will hold its last meeting of the season, featuring local audiophile headphone group **Head-Fi**. The Head-Fi group will make a presentation on the growing interest in headphone listening. We will also have a number of high-end headphones on hand to sample, using high-quality program material. The meeting will be held at the Pavek Museum of Broadcasting (3517 Raleigh Avenue, St. Louis Park). Refreshments will be served; guests, visitors, and new members are welcome to attend. For more information about this meeting, visit our website at [www.audiomn.org](http://www.audiomn.org).

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# ANALOG CORNER BY MICHAEL FREMER

**THIS ISSUE:** Listening impressions of Ortofon's MC A95 cartridge and Brinkmann's Spyder turntable.

## Significant Makeovers of Two Familiar Products

**I**t's difficult to believe that more than five years have passed since Ortofon introduced its ground-breaking MC A90 moving-coil cartridge (\$4200 when last available). The limited-edition MC A90, with its radically shaped body made of powdered stainless steel Selective Laser Melting (SLM), celebrated Ortofon's 90th year in business. The MC A95 (\$6500), celebrating their 95th year, retains the A90's seductive shape, but the new body is built of powdered titanium, and thus is even more effectively self-damped.

At High End Mässan 2015, an audio show held in Stockholm in early February, Ortofon designer Leif Johansson dropped onto a table, from the same height, two balls made of different rubbery materials. One bounced high. The other hit the table and stopped dead. The latter was made from a new material used to sandwich the wires coming from the motor between the motor and body of the A95's underside and route them to the cartridge pins, to provide another layer of damping.

In addition, the armature on which the A95's coils are wound is somewhat magnetized, instead of the A90's totally nonmagnetic armature, if still less so than the one used in the closed-body Anna. Johansson told me that the A95's open body doesn't permit use of a fully magnetized armature, but by balancing the amount of magnetization in the armature with the number of coil turns, and re-engineering the surrounding magnet structure, he was able to come relatively close to the A90's output while lowering the system's mass, thus improving, among other things, the cartridge's dynamic capabilities. "It's a complex juggling of the variables to produce the desired mechanical and sonic result," he said.

The MC A95's output is 0.2mV (*vs* the A90's 0.27mV), which means it should be used only with finest low-noise phono preamplifiers or the highest-quality step-up transformers. Interestingly, the A95's published specifications are mostly not quite as good as the A90's. The channel balance has gone from <0.2 to <0.5dB, the channel separation at 1kHz from >28

to >25dB, the tracking ability at 315Hz from 100 to 90 $\mu$ m, the dynamic lateral compliance from 16 to 13 $\mu$ m/mN, the internal impedance from 4 to 7 ohms, and the mass from 8 to 6gm. The MC A90's boron cantilever and Replicant 100 stylus are retained.

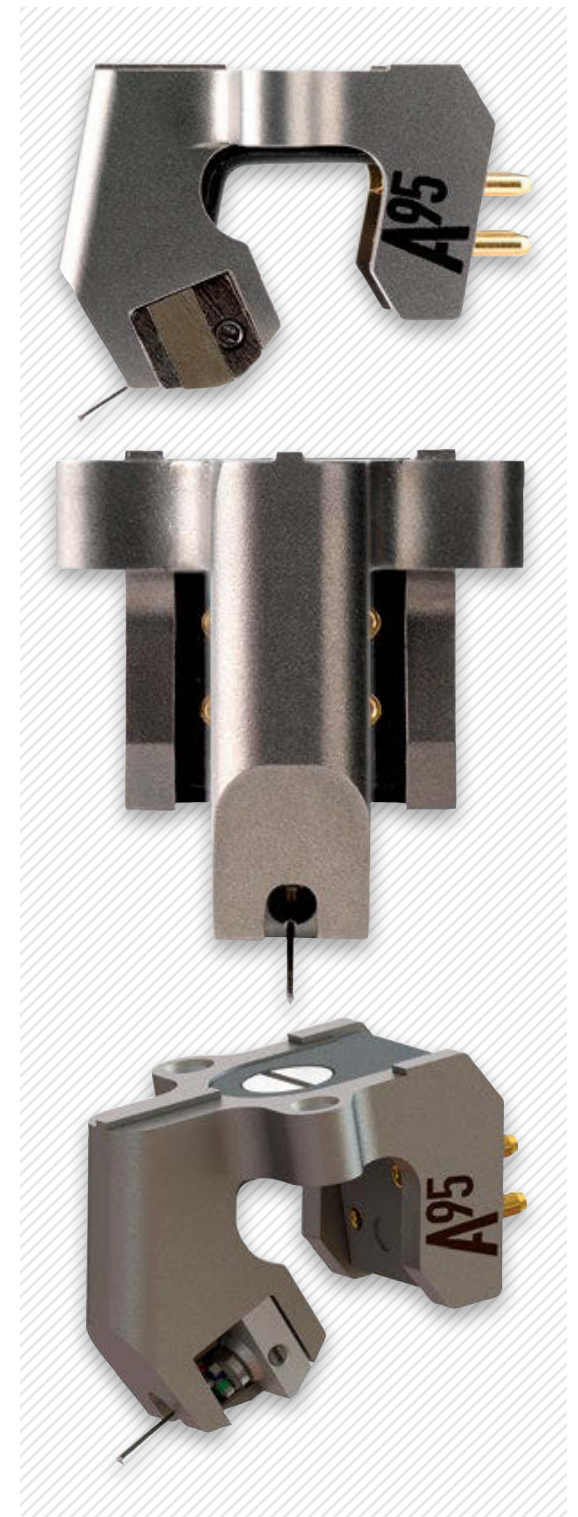
I directly compared the A90 with the A95, and while the A90 remains among the fastest, most neutral cartridges I've ever heard, the A95 produced wider dynamics—particularly in the bottom octaves—and a generally richer, more fully fleshed out sound. If the A90 literally brought the Windfeld out of its protective shell, the A95 is

**The Ortofon MC A95 improves on the MC A90's well-deserved reputation for being one of the world's best-sounding phono cartridges.**

the A90 on testosterone.

Last January, when I first heard the MC A95, in Highwater Sound's room at the 2015 Consumer Electronics Show, my immediate reaction was: "It's like the A90 crossed with the MC Anna." And that's what I heard later, at home, when I compared the A90 with the A95 and the Anna. The Anna remains "meatier," but the A95 is arguably faster and more open, and more transparent in the midrange.

Though the improvements are more incremental than radical, the Ortofon



MC A95 definitely improves on the MC A90's well-deserved reputation for being one of the world's best-sounding phono cartridges. It's a worthy competitor to the two other greats I've reviewed at that price: the Lyra Etna and the Transfiguration Proteus. In terms of tracing an LP's groove and digging out all the details, the advantage goes to the Ortofon's Replicant 100 stylus—but the MC A95 also requires the most attention to setup, particularly stylus rake angle (SRA). More about the MC A95's sound next month.

# BRINKMANN AUDIO SPYDER TURNTABLE AND 12.1 TONEARM

Helmut Brinkmann's handiwork first graced my equipment rack a decade ago, though I'd seen his top-of-the-line Balance turntable a few years earlier at the Kempinski Hotel show in Frankfurt, Germany—a relatively small event that has since moved to Munich and become High End, arguably the world's most important audio show. My review of the Balance appeared in the May 2005 *Stereophile*.<sup>1</sup>

The Balance (\$23,700), first launched in 1984, is still in production, now in its Mk.II iteration, and remains one of the world's most elegant, most finely crafted, most well-conceived turntables. The lower-priced La Grange (\$16,990 without tonearm) has been discontinued; the Spyder is its replacement. There was nothing wrong with the La Grange's construction or sound, but in the years since its introduction the turntable market has heated up, and so has the competition.

The La Grange was, for the most part, a Balance with a lighter platter. The Spyder offers something unique at a lower price (starting at \$14,000), as

well as the promise of better sound.

Generally, in my experience, the less platform or plinth a turntable has, the better it sounds. More platform equals more matter that can resonate. The platformless Simon Yorke S7 proved that to me so conclusively that, after reviewing it for the June 1998 issue, I bought the review sample and sold my large-platform, four-poster VPI TNT (so designed to accommodate the Eminent Technology II air-bearing tonearm). The Balance and La Grange have minimal platforms. The new Spyder has none.

The Spyder's circular, slotted aluminum stand, only slightly greater in diameter than a CD, holds the same pre-heated bearing used in the Balance and La Grange. Because the room temperature isn't a variable, pre-heating permits lower machining tolerances as well as optimal performance on startup. The bearing features a stainless-steel axle, a 30mm ball bearing, and a thrust plate of hardened Teflon with integral oil reservoir.

Machined bolt holes around the platform's top plate allow you to mate the central hub with up to four of

Brinkmann's massive tonearm bases of machined aluminum. Slide a base's strut into a slot in the hub, align the platform holes with the strut's threaded holes, and, using the supplied bolts, secure the base.

Once a tonearm has been installed and its cartridge aligned, you can easily remove and replace the base, and everything will remain in perfect alignment. Even if more than two bases is too busy for you, you can keep ready an indefinite number of tonearm-and-cartridge combinations that can be exchanged and played in a matter of minutes.

According to Helmut Brinkmann, the Spyder's exceptional flexibility in this regard is only one of the reasons he devised the system. In the older La Grange, the tonearm is mounted directly on the minimalist platform, in the shape of an elongated oval, that holds the platter and bearing. Thus, the platform must deal with two sources of vibrational energy produced at the interface of stylus and groove: vibrations that travel through the heavy platter, where much though not all

<sup>1</sup> See [www.stereophile.com/content/brinkmann-balance-turntable2](http://www.stereophile.com/content/brinkmann-balance-turntable2).



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of them are damped before it reaches the platform; and vibrations that travel through the much lighter tonearm tube, some of them damped by the heavy counterweight, the rest traveling down the arm mount and into the base, which is also attached to the oval platform.

The trick is to drain the two streams of energy before they can interact with one another. In the Balance's platform, Brinkmann uses a steel spike directly under the arm mount to quickly drain this greater amount of vibrational

energy. In the Bardo and Oasis, he uses an aluminum foot. In the Balance, the platter's vibrations, now slowed and smoothed, drain through two steel-copper spikes; in the Bardo and Oasis, this is done by two feet fitted with plastic inserts.

The Spyder's outboard arm base provides a greater opportunity to more effectively drain the arm's energy and prevent it from interacting with the energy transmitted by the platter. The circular base's high mass can slow the energy, while small spikes of hardened

steel affixed to its bottom quickly discharge the remaining energy to ground before it can migrate the longer distance along the lower-mass tonearm-base strut affixed to the hub.

The hub bases demand a perfectly flat platform. Brinkmann has long advocated, and supplies as an option, a Harmonic Resolution Systems platform, which isolates whatever it supports from outside vibrations in both horizontal and vertical planes, and is internally well damped: Its granite base is bonded to polymer, with

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additional polymer elements bonded into pockets CNC-machined into its aluminum frame. Brinkmann does not recommend bases of wood and/or synthetics.

The Spyder's platter is driven by an outboard motor pod containing the Sinus—a new AC synchronous motor, designed and manufactured by Brinkmann, that replaces the Pabst motor used in the La Grange. The Sinus is based on the motor Brinkmann designed and manufactured for the direct-drive Bardo and Oasis. It's a four-phase design (4 by 90°) that produces 16 pulses per revolution, and has a 500gm body of nickel-plated steel that rotates to produce a flywheel effect. The motor drives the platter with an O-ring that rides in grooves machined into the platter's perimeter and the motor's pulley.

Also included are revised solid-state and optional tubed power supplies, optimized for and tuned to the Spyder's 20-lb platter of aluminum-lead-copper alloy, to which is elastomer-bonded a top plate of crystal glass. In addition, Brinkmann has reworked the power supply's shunt-regulation element, contained within the motor housing, that produces ultralow (down to DC) power-line impedance.

The RÖNt II—the new version of Brinkmann's tubed power supply—is a single-ended class-A design that uses two high-current, low-resistance P36 pentode tubes and a 5AR4 rectifier tube. Skeptics certain that a tubed power supply can't possibly affect a turntable's sound need only compare the Spyder's performance using both supplies, as I did.

The Spyder, with one arm pod and solid-state power supply, costs \$14,000. Additional arm pods are \$3000 each; the RÖNt II tubed supply adds \$4300. For this review, Brinkmann also supplied a 12.1 tonearm (\$7500) and a second arm pod for it, bringing the total cost of the review sample to \$28,800.

**Setup and Use:** For the most part, setting up the Brinkmann Spyder was straightforward, especially on a stable, level platform. I use the Harmonic Resolution Systems SXR stand and an oversize HRS M3 1925 base, which has an isolation foot at each corner. Two additional feet can be added, depending on the mass supported.

The Spyder's instructions need

**Fig.1** (near right) Brinkmann Spyder, speed measurements from Dr. Feickert iPhone app.

**Fig.2** (far right) Brinkmann Spyder, absolute speed variations (yellow) and low-pass filtered (green).

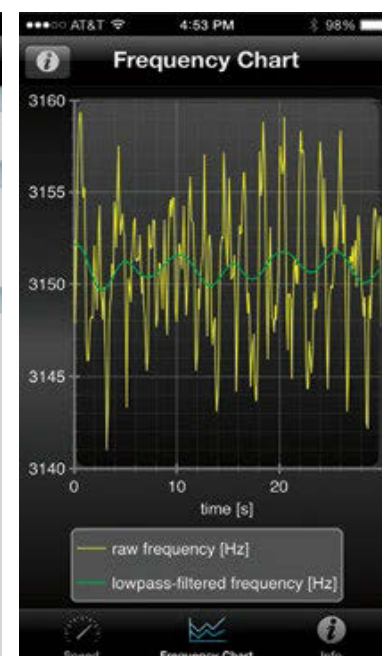
expanding and updating; Helmut Brinkmann has promised that this will be done. For instance, the bearing housing comes wrapped in orange "warning" tape. The instructions don't make clear if this tape should be removed before the platter is placed atop the bearing. I did. "No problem," I was told—but I still wasn't sure what's meant by the tape.

In any case, after the circular bearing platform is put in place, you position the arm pod(s) where you want them, inserting the end of each pod's strut into a slot in the turntable's base and securing it with the two bolts. Each pod is massive, and attractively machined of aluminum. If the arm-mount opening has been eccentrically drilled, loosen the three screws that affix the top plate to allow it to be rotated, then retighten it to fine-tune the distance of the arm pivot to the platter's spindle. An opening at the pod base can be fitted with termination blocks (RCA jacks), or left open to pass hardwired or DIN-to-RCA phono cables. I positioned one arm pod at 2 o'clock, the second one at 10 o'clock, and the motor pod at 7 o'clock.

The movable arm pods are particularly useful for those using a USB microscope to set vertical tracking angle (VTA) and stylus rake angle (SRA) but who can't get behind the equipment rack. That would be me. With the Spyder, you can set SRA with the arm in the usual position, then move it to the rear one. I used both the Brinkmann 12.1 tonearm and, on the second pod, a Kuzma 4Point.

Because the Spyder's solid-state power supply runs the bearing heater as well as the motor, it must be used even if you've ordered the RÖNt II tubed supply. Brinkmann supplies a granite platform for the RÖNt II, and a generous length of connecting cable to give you wide placement latitude—a small but thoughtful consideration.

Using the Spyder was straightforward: a spindle insert



provides the center lift for the screw-on reflex record clamp. Power up the tube supply and choose the speed, 33 $\frac{1}{3}$  or 45rpm, by pushing one of the two buttons mounted on the top plate of the motor pod. Speed is adjustable via two potentiometers on the same top plate.

I ran into what I think is a small glitch: When I turned on the RÖNt II, the platter spun—even when I'd made sure to stop it before powering it down. The 33 $\frac{1}{3}$  light glowed amber on startup until I cycled it off, at which point it glowed the correct color, green. I'm not sure why that happens, but I don't *think* it's a major problem.

Of greater concern was the platter's speed stability, which I measured using Dr. Feickert Analogue's PlatterSpeed iPhone app and test record. Whatever problems the Feickert setup itself may have, using it to measure every turntable at least provides a level playing field. I carefully positioned the tonearm pod relative to the platter and adjusted the speed—which must be very carefully done, due to the pot's relative coarseness. Although on the Feickert test record's 3150Hz tone the Spyder achieved a mean of 3150.9Hz—pretty accurate—the raw frequency-deviation measurements, relative and absolute were greater than I like to see in so costly a turntable (fig.1). What's more, the low-pass-filtered frequency (fig.2, green line) undulated, deviating from flat more than I'd hope to see for this kind of cash. Repeating the test using Brinkmann's solid-state supply produced better raw frequency results and similar low-pass-filtered ones.

For reference: VPI's Classic Direct Drive with 3D-printed 12" arm costs \$30,000. The Spyder with supplied



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pod and 12.1 arm costs \$21,500 (or \$25,800 with RönT II supply), but produced low-pass-filtered numbers about four times worse.

**Sound of a Spyder:** I took those measurements after two months of listening to the Brinkmanns. While those figures were surprising and somewhat disappointing, the Spyder's sound had been anything but. Subjectively, the Brinkmann's speed stability was outstanding—including with piano recordings with long sustains.

I played a variety of classical LPs, including the superdeluxe ones from the Electric Recording Company mentioned in my review of Bricasti's M28 power amplifier elsewhere in this issue. In addition, I began auditioning Analogue Productions' latest reissues of RCA Living Stereo vinyl, including the Sibelius Violin Concerto with violinist Jascha Heifetz and the Chicago Symphony conducted by Fritz Reiner (LSC-2435), and Charles Munch and the Boston Symphony's recordings of Debussy's *La Mer* and Ibert's *Ports of Call* (LSC-2111). I have multiple original pressings of both, but none that sounds as dead quiet, dynamic, and transparent as these.

I used the Kuzma 4Point and Brinkmann 12.1 arms, and a diverse group of cartridges that included: Lyra's Atlas and Etna; the Triangle Arts Zeus; Ortofon's Anna, MC A90, and MC A95; and Miyajima Lab's Madake. The Spyder allowed each cartridge to speak its own mind, imparting very little of its own character, especially in terms of all-important tonality and rhythmic authority. The Spyder produced authoritative dynamics, an especially strong sense of musical flow, and backgrounds so "black" that I often thought I'd selected the wrong input when, after a stylus had hit the record, I unmuted the preamp. While the Spyder didn't match the VPI Classic Direct's or the Continuum Audio Labs Caliburn's weight and *drive*, few tables in my experience have.

The Spyder's bottom-end weight, control, and rhythmic authority kept me fully engaged, though I wasn't taken by surprise as I'd been, a decade ago, by the Balance's subterranean, "fundamentally correct, deep, tight, articulate, yet delicate bottom-end performance," as I described it in my review. Nor did I expect to be, given the differences in price and platter



weight.

The Spyder's overall sound was slightly warm, and it didn't recover from big, low-frequency body slams quite as quickly as did the Balance—which meant that it didn't carve out the big spaces as well as I recall the Balance doing. However, its soundstage width and depth, and its resolution of low-level decay information, put it in the big leagues compared to the more tidy and far less expensive Bardo.

**An Unexpected Surprise—Brinkmann's 12.1 tonearm:** Given the overwhelming superiority of the Kuzma 4Point tonearm (\$6675) to the Brinkmann 9.6 (\$3990) when I compared them in my review of the Brinkmann Bardo and 9.6 in the May 2011 issue, I expected the same performance differences here—even though the 12.1 (\$7500) uses a more sophisticated horizontal bearing. (To keep down costs, the 9.6 has a unipivot-like horizontal bearing.)

While the Kuzma 4Point still maintains an edge in terms of bass weight and authority, the 12.1 had two things going for it that, at least on the Spyder, bettered the 4Point, or at least made for a more attractive sound. One was the 12.1's *lusciously* velvet midrange. The other was the delicacy and nimbleness of the bass. It didn't have the 4Point's slam or dynamic expression, but with some recordings it made the 4Point sound somewhat lead-footed. If you listen mostly to classical or acoustic jazz and you're willing to give up that last bit of bottom-end slam and push-you-back-in-your-seat weight, I'd go with the 12.1 on the Spyder. You could always get another arm pod for a 4Point, or another arm with fully developed bottom-end slam.

**Conclusions:** I'm not sure what to make of the Brinkmann Spyder's speed deviations, which I measured but didn't hear. Had I just used a strobe to set the speed, I wouldn't be

talking about speed problems at all—they weren't audible as such. Perhaps the Spyder's slight lower-frequency warmth and inability to carve deep trenches between the notes was what I heard and measured. I don't know.

I also know that, when I A/B'd Brinkmann's solid-state and tubed power supplies, I preferred the RönT II's more nuanced reproduction of

transients and deeper soundstages. Were those the results of the even greater measured speed fluctuation? I don't have an answer there either.

What I do know is that the \$21,500 combination of Brinkmann Spyder and 12.1 arm with standard power supply will get you a versatile, ingeniously designed turntable built to the highest manufacturing standards, and an equally well-designed and precisely executed tonearm. The combination kept me listening blissfully for two months.

Otherwise, Brinkmann's combination of innovative, flexible, upgradable design, quality manufacturing, careful attention to small but important details—and outstanding sound—make the Brinkmann Spyder with 12.1 tonearm easy to recommend. ■

*Michael Fremer (fremer@analogplanet.com) is the editor of AnalogPlanet.com, a website devoted to all things analogical.*

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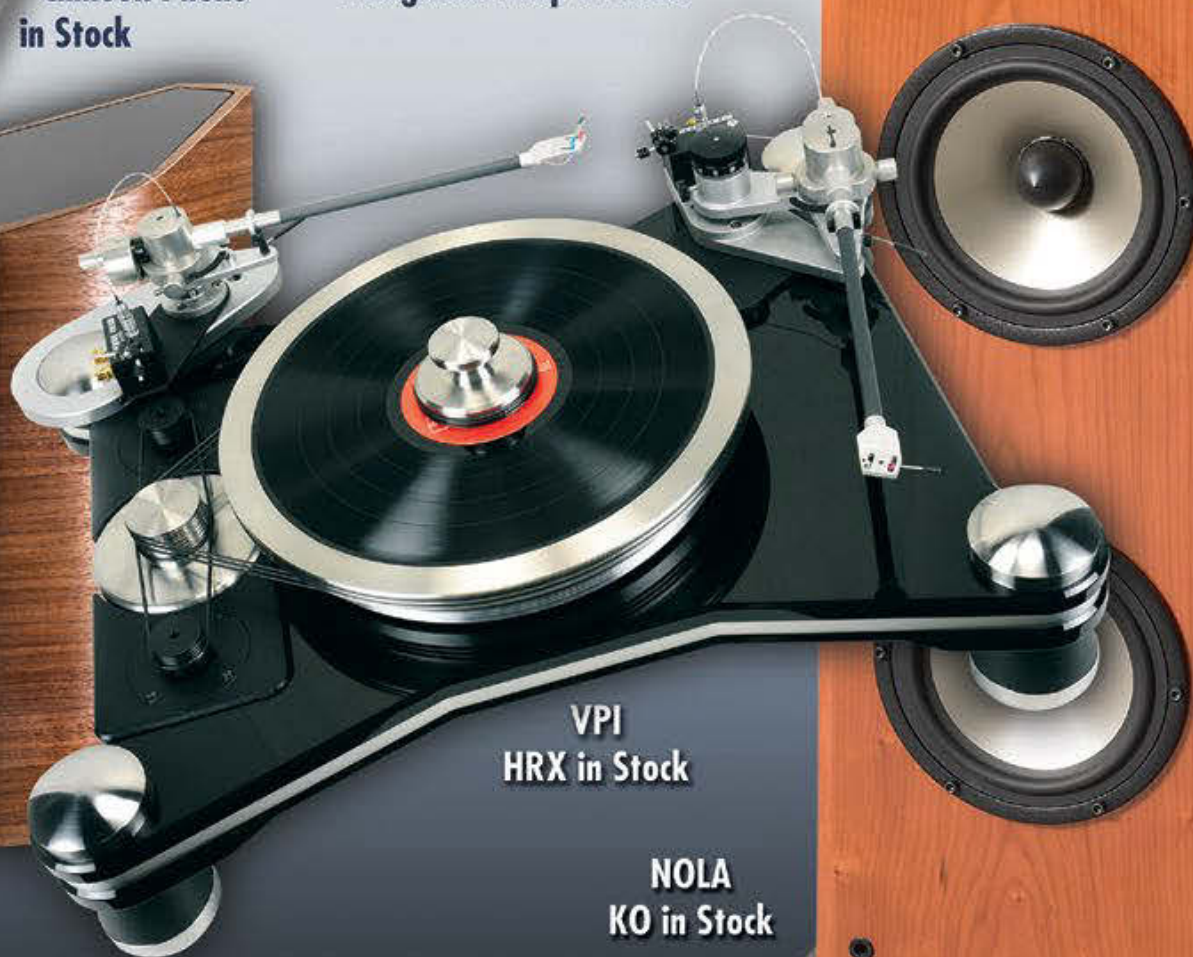


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# LISTENING BY ART DUDLEY

**THIS ISSUE:** Desktop audio from Eclipse and 300B tube power from Raven Audio.

## Listening With My Eyes

**A**t home, I have two different ways of listening to music—just as I have two different ways of cooking and washing the car and making coffee and getting dressed to go out.

My first approach to listening is the one that takes the most time: It requires forethought and effort and, consciously or not, a certain amount of ritual—yet those things are enjoyable in and of themselves, and the end results are often more than merely satisfying.

My other approach is the one I take when there's a piece of music I'm intent on hearing *right away*, and I have a limited amount of time and no inclination toward effort.

My record collection and my playback system—the latter with its different tonearms for different pickups and different pickups for different records and different amplifiers for different moods—are perfectly suited for the first kind of listening. But they make a mockery of my efforts toward the second kind.

Consequently, although I'm thankful for the good fortune of owning such nice things, I continue to look fondly on that too-brief time when my modest record collection was divided between 12" LPs and 7" 45rpm singles, and when my system was the family's Webcor portable record player, which I schemed to keep in my room as much of the time as possible. It seems to me now that I had quick, easy access to the music I loved, and the experience was almost always great. What happened?

### I had more hair, too

The catalyst for those musings is the Eclipse TD-M1 powered loudspeaker (\$1300/pair), which Michael Lavorgna reviewed for our sister site [audiostream.com](http://audiostream.com).<sup>1</sup> To the person with a collection of music files and a suitable device through which to stream them, the Eclipse TD-M1, designed and made by Japanese manufacturer Fujitsu Ten, is a more or less complete hardware solution. It comprises an onboard digital preamplifier and amplifier; an onboard D/A converter capable of 24-bit/192kHz performance with music streamed through its USB input; and onboard WiFi, for 16/44.1 wireless streaming via Apple AirPlay.

The TD-M1 is built around a proprietary 3" driver with a synthetic-fiber cone, a fabric dustcap, and a compliant surround. Its substantial and rather intricate alloy frame is designed to hold the driver rigidly within a molded exoskeleton, the latter intended to prevent the formation of standing waves within and high-frequency reflections without, and formed with a rearward reflex port. The resulting shape of the enclosure is

not unlike that of a cartoon wolf's eyes when they zoom from their orbits and stretch, to impossible limits, their optic nerves and rectus muscles.

Each eye or egg or whatever you want to call it is fastened to its base by means of a metal strut with some measure of articulation; vertical tilt can be set for one of three positions, then locked in place with a cam-clamp of the type used on modern steering-wheel columns—a nod, perhaps, to Fujitsu Ten's work in the automotive field. Tilted fully upward, there is something compelling, even *cute* about the TD-M1, the stance of which suggests an appliance ready to please. It looks almost human, as long as your definition of *human* includes such descriptors as hairless and monocular. Mine certainly does.

The base of one TD-M1 per pair—the one designated for the right channel—contains a 20Wpc digital amplifier and other electronics, and its rear panel is fitted with connectors for a WiFi antenna, USB Type A and Type B connectors, a 3.5mm jack for a line-level analog input, and an



Monocular and monochromatic: the Eclipse TD-M1 system is available in black or (off-) white.

inline jack for the system's external AC adapter, itself bigger and nicer looking than the average wall wart. A nonremovable cable, just under 5' long, carries the amplified music signal to a 3.5mm input jack on the base of the left-channel speaker.

### TD-M does not spell tedium

After it arrived at my home, the Eclipse TD-M1 system was installed by Philip O'Hanlon, of Eclipse's US distributor, On a Higher Note, who was then traveling through the Northeast. Unfortunately, we chose for the TD-M1 a portion of my family's outsize dining-room table, and it wasn't long before social obligations forced me to dismantle the system and set it to one side, prior to setting it up on my desk

<sup>1</sup> See [www.audiostream.com/content/fujitsu-ten-eclipse-td-m1-wireless-speaker-system](http://www.audiostream.com/content/fujitsu-ten-eclipse-td-m1-wireless-speaker-system).

a couple of weeks later. Fortunately, installation wasn't at all daunting, and the instruction manual is about as good as one can expect: comprehensive, clear, and laudably free of unnecessary jargon, the likes of which strike fear in the hearts of the impatient.

It seemed that the TD-M1's soft-touch controls, which are also built into the right-channel speaker, were designed to remain inconspicuous when not in use. They succeeded at that, but they also made themselves rather too scarce when they *were* in use. A concealed *strip* for adjusting volume, designed to respond to taps or side-to-side swipes, was imprecise, and often produced the opposite of the desired effect before changing course. And the source-selector switch, which is also the main power switch—holding down the button for different amounts of time enables different functions—is unlabeled, so the user must memorize the toggling order of the four available sources: AirPlay, USB B, USB A, and Aux (line-level analog). Such tasks were made easier by the Eclipse TD-M1 app, available free of charge from the iTunes App Store, and which also gives the user the ability to disable the system's

digital filter, a function not found on the TD-M1 itself. Those mildly impractical controls were the only fly in this ointment; otherwise, once I became accustomed to its way of doing things, the TD-M1 was easy to use.

After connecting the Eclipse system to my iMac with a USB cable of the usual sort, setup was a simple

**Once I became accustomed to its way of doing things, the TD-M1 was easy to use.**

matter of opening the Apple's System Preferences window and selecting "Eclipse TD-M1" from the Sound menu—which is to say, it was as simple as hooking up any USB DAC. Within just a few minutes, I was enjoying files from my iTunes library.

No less intuitive was the TD-M1's wireless function. For Christmas, my wife and daughter gave me an Apple iPhone 6 Plus—also good for eyes that have been stretched to the limit—and it took less than a minute to bring up

the iPhone's Control Center, switch on AirPlay, and select "Eclipse TD-M1." I asked my daughter to bring in her own iOS 8-equipped iPhone; with minimal guidance and in about 20 seconds, she was streaming Vampire Weekend and St. Vincent and the Black Keys through the TD-M1s.

And they sounded fine! The files on my daughter's iPhone are mostly MP3s, while those on my own phone are mostly AIFF files ripped from CDs in my collection. In AirPlay mode, the Eclipse TD-M1 was candid about the distinctions between those and other file types, but not rudely or ruthlessly so. MP3s sounded grainier than AIFFs, and AIFFs sounded a bit chalkier than they do when streamed to my Halide DAC HD and played through my big system. Yet in *every* case, digital files streamed wirelessly to the Eclipse TD-M1 exhibited more momentum and flow, and were far more involving, than they had any right to be.

Part of that had to do with the TD-M1's tonal balance and spatial attributes. For lack of a better word, and for reasons I can't begin to fathom, listening to the Eclipse system reminded me of listening to

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headphones—but headphones that *everyone* could hear, that didn't make me feel as if I were in an isolation tank, and that didn't make my ears itch or hurt. (God, I despise headphones.) I wondered, more than once, if the TD-M1 has some sort of built-in, Fletcher-Munson-style loudness correction: Regardless of volume setting, music played through this desktop system always sounded rich, big, and uncannily right. It was almost creepy. But *good* creepy.

And while my big system, with its powerful Garrard 301 turntable at one end and a pair of Shindo-driven Altec horns at the other, obviously bettered the TD-M1 in any performance aspect you could name, the Eclipse system was nonetheless successful at the most important thing of all: It got me all wrapped up in whatever music I happened to be playing. I got misty during Nick Cave's "Far from Me," considerably more than misty during Nick Drake's "Fruit Tree," cloud-nine happy during John Lennon's "Instant Karma," and righteously outraged during the Rolling Stones' "Street Fighting Man." I had a great time with this system whenever I used it—and it

was always *easy*.

It isn't every day that I make coffee by grinding the beans by hand and bringing the water to the precisely correct temperature (*never boiling!*). And some days, a drive in the car is nothing more than a way to get to the post office and back, and never mind that I haven't cleaned the brake calipers for a couple of months. Similarly, on some days I'm less interested in unearthing colors and textures and sensations from the grooves of my LPs than I am in simply hearing Pink Floyd's "See Emily Play" *right now*—or Procol Harum's recently unearthed "Understandably Blue," or the fiddle tunes Clarence White recorded for his guitar students, or a few cuts off that 1962 Dylan bootleg from the Finjan Club, in Montreal. There is ritual, and then there is easy access; assuming each is done well, I enjoy having both.

A final note: While tooling around the website of Eclipse's parent company, I stumbled on Fujitsu Ten's corporate "behavior declaration," which stresses the concept of *makoto* (sincerity), and which pledges respect for human rights, prohibition of forced or child labor, fair conditions, a safe

work environment, and the realization of true job satisfaction. Just like corporations here in the US. (That's a joke, son.)

### RAVEN AUDIO SPIRIT MK2 MONOBLOCKS

You may recall a reference, in *Stereophile's* May 2014 issue, to the Raven Audio Spirit 300B Reference Mono amplifiers. Like the ghosts in Henry James's *The Turn of the Screw*, the Monos hid in the margins of the story—the story, in this case, being my review of Raven's Spirit 300B Reference Stereo amplifier—yet never came into the open. As it happened, during a very brief trial in my system, both Spirit Reference Monos produced distressing noises, and a wisp of smoke curled, ectoplasm-like, from at least one of them. Those amps were subsequently replaced by their two-channel stablemate, which earned praise for good sound and respectable measured performance. And so the story might have ended.

But then came last year's New York Audio show in Brooklyn, bringing with it the chance to meet Raven Audio's Dave Thomson:

"IN MY HUMBLE OPINION, THERE IS NO PHONO STAGE IN PRODUCTION THAT OFFERS AS MUCH MUSICAL ENJOYMENT WITHOUT SPENDING AT LEAST TWICE AS MUCH MONEY. I COULD HAPPILY LIVE WITH THE H1201 FOREVER." CHRIS CHAMBERLIN



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the man who builds, in Texas, the electronics that his partner, S.E. Han, designs in South Korea. As you might imagine, Thomson's gladness at the positive review was outweighed by his distress at having sent me a pair of noisy troublemakers, at least one of which smoked. I couldn't help being impressed by Thomson, a former Nashville resident who for years earned his living as a singer-songwriter; thus, when the subject turned to That Review, I surprised both of us by spontaneously offering to have another go at the Spirit Monos—now available in an updated version called the Spirit Mk2 Monoblocks (\$13,990/pair).

As happens to so many guests who visit my home in late fall, trouble befell Dave Thomson and his very lovely wife, Gabrielle—who had our shaky grenade of a terrier literally eating out of her hand—in the form of unpredicted snow. Yet we prevailed, and succeeded in getting the Spirit Mk2 Monoblocks out of their newly designed and eminently reusable cartons and into my listening room. Tubes were installed, plugs were plugged, and in due course we powered up the amps. Each made noise: one very quietly, the other much more audibly.

Brows furrowed. The ensuing flurry of activity culminated in our swapping, left for right, the proprietary Raven Audio AC cords—if only because, after having also swapped interconnects and reseated and swapped tubes, all to no avail, we were running out of ideas. Surprisingly, it worked: When we powered up the amps, the louder noise was completely gone. Then I powered down the amps and re-swapped the AC cords, this time noting that the fit between the cords and their IEC sockets was even more resistant and vague than is usual for such things (which is really saying something). Once again, the amps were powered up; once again, the more distressing noise was nowhere to be heard.

Thomson and I wondered: Had the noise originated from intermittent contact between wall current and amp? And I wondered: Had the same thing caused the noise and smoke during my first go-round with the Spirit Reference Monos? This morning, after two months of trouble-free and eminently musical performance from the Ravens, I can't help thinking that both may have been so.



**Through the Ravens  
I could still hear and  
feel how damn hard  
Lennon was pounding  
those piano keys.**

**Automatic Writing:** For those of you who missed my review of Raven Audio's Spirit 300B Reference Stereo,<sup>2</sup> a brief recap: Like its stereo sibling, the Spirit Mk2 Monoblock is a hand-wired amplifier that uses a push-pull pair of 300B direct-heated triode tubes, operated in auto-bias mode, to produce 26Wpc. Phase inversion and initial voltage gain are supplied by a pair of 12J5 dual-triode tubes, while three 12SN7 dual-triodes—the 12V version of the more common 6SN7—handle the other input-section chores. Incoming AC is set straight with a pair of 5AR4 rectifier tubes, in contrast with the solid-state rectification of the stereo model. Other niceties include a top-mounted hum pot for the 300B tubes, which are heated with DC rather than AC, and the use of an interstage transformer in place of a coupling cap between the driver tube and the output stage.

More conspicuous than any of the foregoing are the Spirit Mk2's size and weight: Two of them take up almost four square feet and weigh 128 lbs—forcing me to keep them on the floor rather than on my equipment rack. Fortunately, the contact points of the amps' adjustable feet are 14mm-diameter steel balls; today, that portion of my hardwood floor remains undamaged.

Late in the morning on the day after the Thomsons' departure, I spent some leisurely time with one of the greatest pop records ever made: John



The very stylish Raven Spirit Mk2 monoblock, fore and aft.

Lennon's *Plastic Ono Band* (LP, Apple SW 3372). Mine is the original copy I bought in 1971, with the washed-out, pale-green apple on the label, and which I've now given to my daughter, who just turned 17. (I still have the Mobile Fidelity Sound Lab LP of a few years ago, though that reissue lacks the original's directness and magic.) Before I parted with it, I washed the LP in the Audiodesksysteme Vinyl Cleaner—again, the word *transformative* came to mind—and played it on my usual system, with the Shindo Haut-Brion as the amp and the Altec Valencias as the speakers. I started with side 2, because I wanted to hear “Remember”—my daughter and I had recently rewatched *V for Vendetta*—and when I heard it through my system I cried a little. This was partly a reaction to setting off a nostalgia bomb when no one else was in the house, and partly because the music sounded good and right and angry and funny and propulsive and hard hitting, just as it was supposed to.

Then I powered down the old Haut,<sup>3</sup> inserted the Raven monoblocks

<sup>2</sup> See [www.stereophile.com/content/raven-audio-spirit-300b-reference-stereo-power-amplifier](http://www.stereophile.com/content/raven-audio-spirit-300b-reference-stereo-power-amplifier).

<sup>3</sup> I was horrified when, in *Downton Abbey*'s fourth season, *haut* was pronounced—by none other than Dame Kiri Te Kanawa!—to rhyme with *goat*. Ack.



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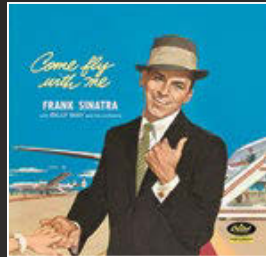
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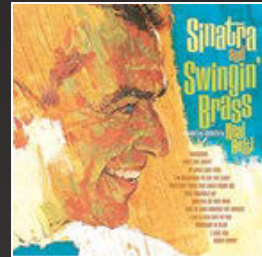
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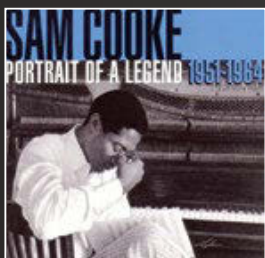
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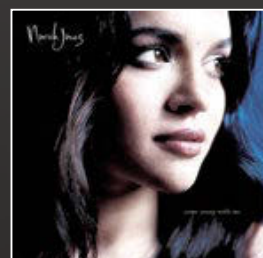
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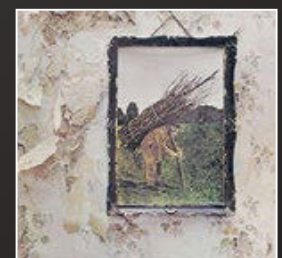
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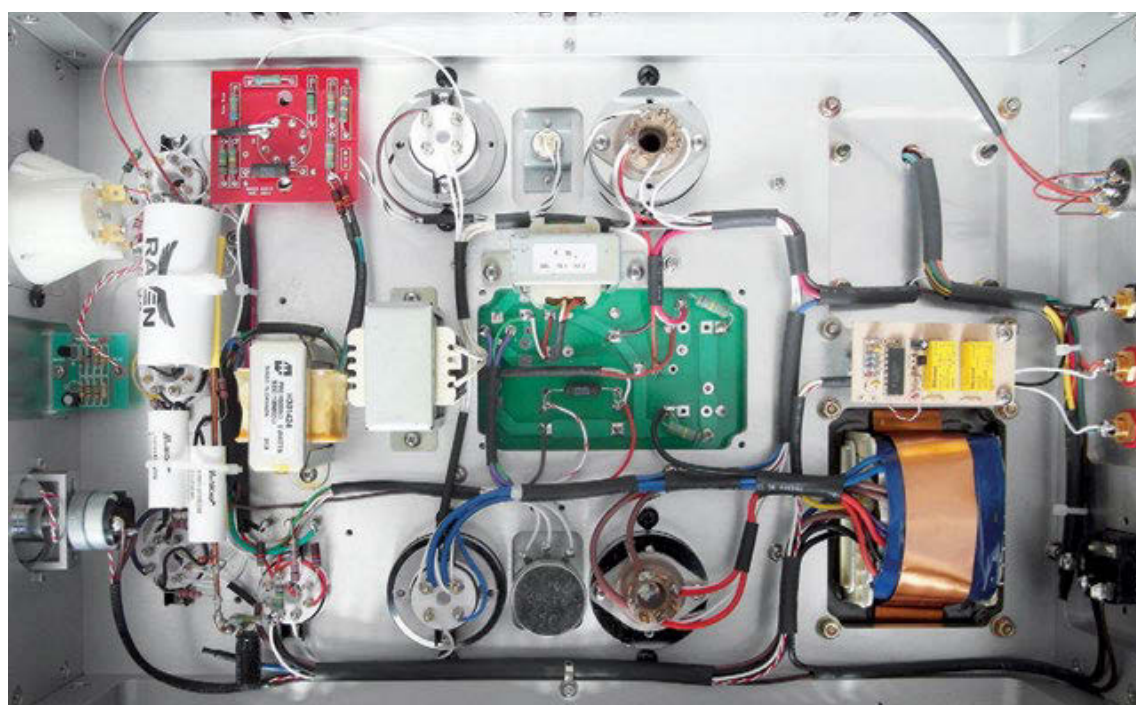


in the system, and when they'd warmed up I played that song again. It was pretty damn good. I can't honestly say I cried again, but maybe I had just one good cry in me that day. When I forced myself out of my reverie and made myself analyze the differences, I concluded that the Ravens didn't have quite the Shindo's sense of drive, but they did have good momentum, some swing, and lots of directness and impact. Best of all, through the Ravens I could still hear and feel how damn hard Lennon was pounding those piano keys: Especially during the intro, I could just about hear the instrument *shake*. And Klaus Voorman's bass in "Well Well Well" sounded monstrously good: It had cartloads of color and punch.

With emotionally challenging music and strenuously played piano in mind, I turned to the great, late John Ogdon and his 1969 traversal of Messiaen's *Vingt regards sur l'enfant Jésus* (LP, Argo ZRG 650-1). The strangely aggressive fugue *Par lui tout a été fait*, the strong left hand of which sounds at times almost like boogie-woogie, allowed the Raven to show off its good, big sense of scale and, again, its good sense of momentum. Color and texture were also outstanding with this track, and the Raven's musicality—its flow and general clarity of rhythmic purpose—were such that this very challenging music was easier to understand than through most other gear.

Unlike some 300B amps, the Raven was not a "happy lens." Cat Stevens's *Teaser and the Firecat* (LP, Island ILPS9154), an okay record with a barely tolerable lower-treble edginess, was still an okay record with a barely tolerable lower-treble edginess. Guitarist Mark O'Connor's tone was still just fair, Dan Crary's still clearly deficient. And the Spirit Mono didn't do the Fletcher-Munson thing: Every King Crimson album in my collection persisted in sounding best at higher-than-average playback levels, with which the Ravens were very comfortable.

And even at those higher-than-average playback levels, the Ravens maintained their poise and clarity. Listening to Bernard Haitink and the Royal Concertgebouw Orchestra's recording of Mahler's Symphony 3 (2 LPs, Philips 802 711/12AY), I was impressed with the clean sounds of horns and, especially, cymbals, the latter free from congestion and hash. More notable were the clean sounds of the



### This Raven deserves more than a second look and listen.

timpani and bass drum early in the first movement—even more so than my Haut, which is something of a detail maven, the Ravens made it easy to hear and feel each individual application of mallet to skin, without smearing or overhang. The Spirit Mk2 was also superb at digging very subtle, soft details from the mix, such as the faint bass-drum rolls behind mezzo-soprano Janet Baker in portions of Elgar's *Sea Pictures*, recorded with Sir John Barbirolli and the London Symphony Orchestra (LP, EMI ASD 655).

In addition to a very pronounced noise that I mentioned earlier—apparently cured by more firmly seating the plugs of the AC cords in their sockets—at least one of the Spirit Mk2 Monoblocks produced a few subtler *hums* and *zizzes*. Those were all traced to a single 12J5 tube—which, like all of the dual-triode and rectifier tubes supplied with the Ravens, is an original, new-old-stock tube manufactured by the likes of RCA, Westinghouse, GE, or Sylvania. I recall, from conversations with Dave Thomson, his high regard for golden-era vacuum tubes, and I know the importance he places on letting his customers hear the Ravens at their very best. All the same, I can't help wondering if it isn't better to use, in a brand-new product line, a tube of which greater, newer, more consistently reliable stocks are easily available—even if an NOS tube might sound 10% better. Just sayin'.

Inside the Raven: cleanly laid-out and very well-built.

I'm one of those listeners who believe there exist, among amplifiers, many different paths to glory—yet who has a special place in his heart for low-power, push-pull tube amps, especially monoblocks. A number of such models have impressed me over the years, and the realistically bold-sounding Raven Spirit Mk2 Monoblock has earned its place among them. Given that the Spirit Mono, even at \$13,990/pair, is among the very better values in this heady field, and that Dave Thomson, like Leonard Cohen, is a man still working for your smile, I believe that this Raven deserves more than a second look and listen. ■

Art Dudley ([art.dudley@sorc.com](mailto:art.dudley@sorc.com)) listens to the music he loves in snowy upstate New York.

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# Pangea Audio Introduces the \$29.95 AC-14 Power Cable and Something Unexpected Happens...



**Jay Victor, Designer**

for over a dozen high-end audio brands.

Jay designed the Pangea Audio AC-14 AC power cable specifically for source components like preamps, CD players, and DACs. Jay kept the price low – \$29.95/1M – by keeping the design elegantly simple and by using high-integrity molded connectors. Pangea Audio loved the AC-14 cable and introduced it to the market.

**F**our years ago, Pangea Audio decided to develop a low price power cable as an upgrade to the cheap power cables that came in the box with nearly all high-end audio gear. They asked veteran cable designer, Jay Victor, for help. Holder of more than forty patents and trademarks for audio gear, Jay Victor has designed high-end audio cables

Shortly after AC-14's introduction something unexpected happened. Audiophiles around the country began reporting the inexpensive AC-14 sounded better than other upgrade power cables costing five to ten times more. Word of AC-14's excellent performance quickly spread among audiophiles. Over the next few years, more than *ten thousand* AC-14 cables were sold.

Pangea Audio's AC-14 was quickly followed by the massive seven-gauge AC-9 power cable for the high-current demands of power amplifiers, and then by other more advanced "SE" Pangea Audio cables. These newer cables featured better shielding and higher grades of Japanese-made copper for improved performance. The new cables sold extremely well until one day, without warning, the Japanese manufacturer of these higher grades of copper announced they were ceasing production.

Pangea Audio began searching for a new high-grade replacement copper.

## American Solution Courtesy of George Cardas



**George Cardas  
Cardas Audio**

Pangea Audio contacted George and asked if he would be willing to sell them his copper. "Why not?" was George's reply and they struck a deal.

Years earlier, industry veteran, George Cardas, was unhappy with the quality of the copper available for his high-end cables. George decided to make his own copper conductors. His search eventually led him to a small conductor manufacturer in New England that was about to close. George's orders revived the factory, and it's still operating today.

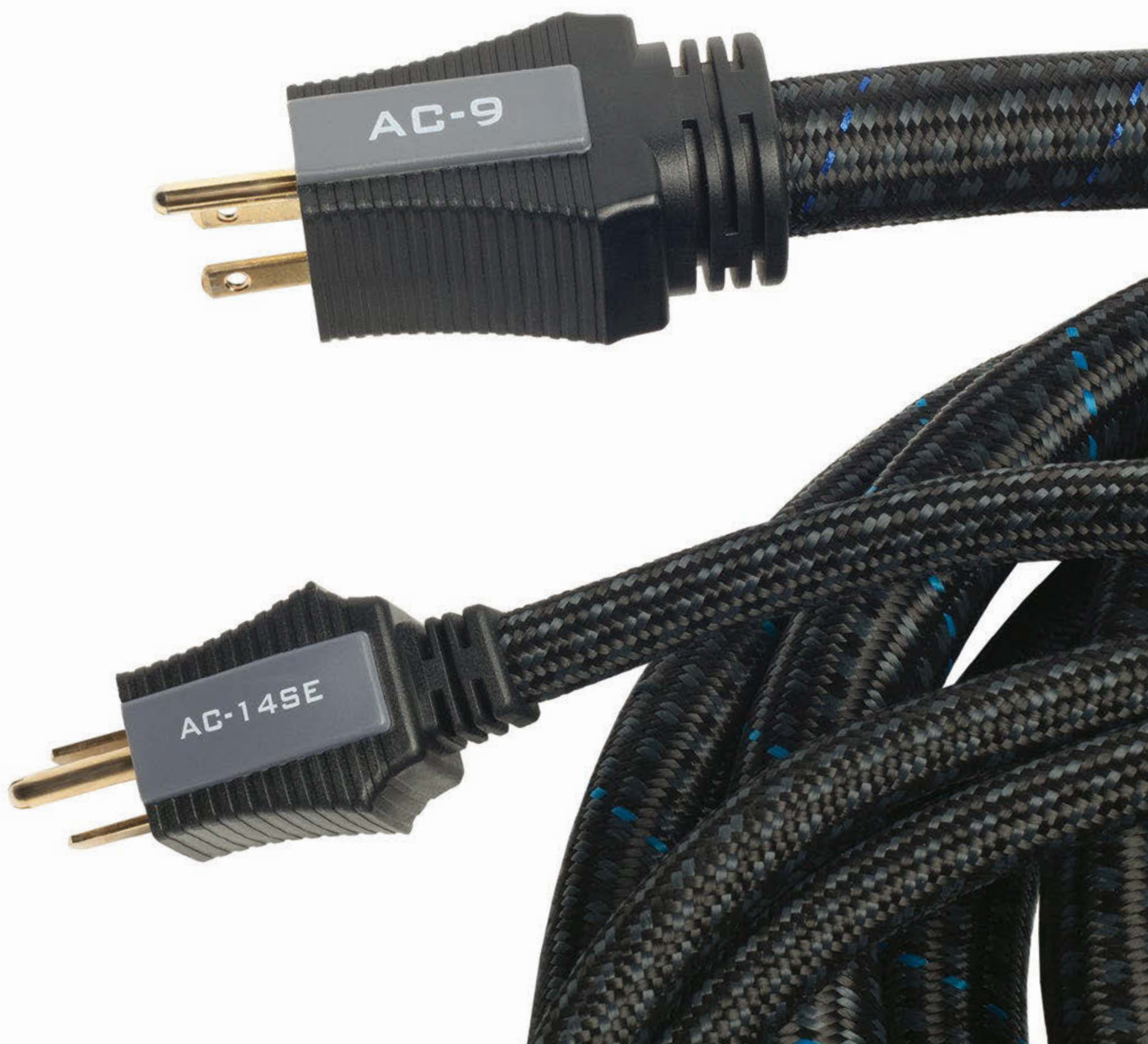
Mined in Arizona, the copper is shipped to New England, where it is melted down and then slowly drawn into conductors using a custom-build Argon gas-filled extrusion machine. Argon gas is used to ensure that no oxygen impurities get into George's copper. The Cardas Grade One Copper is then flown to the Far East, where each Pangea Audio cable is carefully hand made.

George's copper costs a bit more than the Japanese copper Pangea Audio had been using. One listen, however, and Pangea knew the difference was worth it!

George calls Cardas Grade One Copper "the most amazing audio conductor I have ever experienced. It is quite simply the best copper on the planet."

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# The Evolution of the World's Best DACs



## QBD76

For over twenty years Chord Electronics has been making some of the world's most innovative DACs. Not content with off-the-shelf DAC chips, Chord engineers developed their own proprietary pulse-array FPGA (programmable) DAC, the legendary DAC64, a Stereophile magazine A+ Recommended Component. Chord's second-generation FPGA DAC, the \$8,000 QBD76 HDSO, was able to recreate a delicate signal down to a remarkable -150dB accuracy and redefined DAC performance.

## QuteHD

In 2012, this same state-of-the-art technology was made available in Chord's \$1,795 QuteHD DAC. The performance of this ground-breaking device astounded the world's press: the QuteHD was favorably compared to the finest DACs in the world including those from dCS, Esoteric and EMM Labs. With Chord's breakthrough proprietary DAC technology, the QuteHD received dozens of accolades, best-in-class awards and tremendous reviews like:

***"Competitive with top flight CD players from Esoteric, dCS, Accuphase and EMM Labs, this DAC goes head to head and matches them on most scores... an absolutely stunning result for the QuteHD. I am wildly enthusiastic about this DAC"***

- Phil Gold, enjoythemusic, December 2012

## Hugo

The Hugo, released in early 2014, further extended Chord's ground-breaking DAC technology and has become a revolutionary product that has set the standard by which all DACs are measured. By year's end the Hugo had been recognized with over 40 glowing reviews from just about every audio hardware-reviewing entity in the world.

According to Chord founder John Franks, "We were shocked by the off-the-chart Hugo sales. Thousands of people purchased Hugo to use as the main DAC in their home systems – many of which contain price no object components." Why would so many people buy a \$2,500 DAC to use in their world-class

reference systems? Simple: because after careful evaluation they concluded Hugo delivered the very best sound, and that's all that really matters.

## HugoTT

In January 2015 Chord Electronics introduced the new Hugo TT (\$4,795), the most sophisticated DAC they've ever made and one which takes Hugo performance up yet another level and adds functionality and connectivity.

The new Hugo TT offers numerous improvements over Hugo and a substantial improvement in sound quality. Larger batteries and new super capacitors give the Hugo TT more power, galvanic isolation on the USB input completely eliminates jitter, increased Class A bias reduces distortion, plus the Hugo TT is now a balanced design. As a result, the Hugo TT has more power, better dynamics, greater dynamic headroom, a smoother, more natural sound and better soundstage recreation.

Ease of use is improved by a new front-mounted input selector, cross-feed selector, power on/off switch, LED display of selected input, retention of selected input after power down, better accommodation of audio cables, a full function remote control and new single ended and balanced outputs. Apt-X Bluetooth range is increased to 150' and a 75ohm coaxial input has been added. Finally, Hugo TT is built to last with a beautifully machined solid aluminum case and a 15 – 20 year battery life.

## 2Qute

The 2Qute, introduced March 2015, is a Hugo DAC in a Chordette chassis. For those who want the best-sounding DAC for their home system the new 2Qute (\$1,795) is undeniably the best choice. Enhanced RF filtering plus an extra stage of voltage regulation enable the 2Qute to deliver the same performance levels as the Hugo despite being AC powered.

Is the 2Qute the world's "best" DAC? – we'll leave that for you to decide – but, endowed with all of Chord's trademark FPGA DAC technology, it is irrefutably the world's best buy in state-of-the-art high-performance DACs.

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Read the full story at [www.bluebirdmusic.com/hugo](http://www.bluebirdmusic.com/hugo)



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# AUDIO BY MICHAEL LAVORGNA STREAMS

THIS ISSUE: Michael Lavorgna takes Sony's newest Walkman for a stroll.

## A Pocketable Icon Returns

**B**ack in the day, I owned a Sony Walkman cassette player. I loved it. I took it everywhere I went, listening to Jimi Hendrix, Bob Dylan, Neil Young (with and without Crosby, Stills & Nash), Miles, Coltrane, and more. Having music move around with me seemed a giant step into a more perfect future in which we could color our experiences with sound.

The Walkman adapted over time to play CDs delivering Perfect Sound Forever—until developments in technology and psychoacoustics taught us that what we heard was true: early CD-quality playback was *not* perfect. You can argue the theoretical merits of CD till you're blue in the face; the fact is, early CD playback sucked. The same was true of the nearly ubiquitous MP3. While there's tons of great science and engineering behind the MP3, early lossy compression sounded simply awful.

Proponents of CD sound quality and lossy compression don't like to talk about those formats' sordid pasts, or even how digital replay has actually improved since then—after all, how can you improve on perfection?—but with oversampling and better digital filters we were able to remove some of digital's rougher, unnatural edges. That said, some of the most natural-sounding DACs I've heard have been of the non-oversampling variety—but that's another story.

Another step in our digital evolution has been taken due to practical progress in file-based playback, including greater Internet bandwidth and cheaper digital storage, which have eliminated the physical constraints imposed by the CD and lossy compression. We can now listen to our music at the same resolution at which it was recorded, and enjoy reissues of analog recordings that more faithfully capture what's contained on their master tapes.

Sony's new NW-ZX2 High-Resolution Walkman (\$1199.99) plays high-resolution PCM audio up to 24-bit/192kHz, as well as Direct Stream Digital (DSD) up to 5.6MHz, while offering DLNA compatibility along with WiFi (dual-band 2.4/5GHz) and Bluetooth connectivity. It is a thoroughly modern personal digital audio player. And, because it's based on the Android operating system (v.4.2), you can use the NW-ZX2 to download and install apps from Google Play, check e-mail, load and look at photos, watch movies, keep a calendar, and much more, as described



**We can now listen to our music at the same resolution at which it was recorded.**

in the 274-page manual. But we're here to talk about music.

The NW-ZX2 is roughly the size of an iPhone, albeit a bit stouter: 5.1" (130mm) long by 2.5" (65mm) wide by 0.6" (16mm) thick. Its body is milled from a solid slab of aluminum alloy that is finished in a black oxide coating, while its backside is covered in leather-textured black rubber. Much of its face is occupied by a 4", 854x480 (FWVGA) TFT color touchscreen. Inputs include a 22-pin WM-Port for charging and connecting to a computer with the included WM-Port-to-USB cable, and

a 128GB-capable microSD card slot to supplement the player's 128GB of built-in memory. There's a single gold-rimmed, stereo, 3.5mm mini-jack for your earphones or, with a 3.5mm-to-RCA cable, to connect to your hi-fi.

Along the NW-ZX2's right edge are a number of pushbuttons: power on/off, volume up/down, play/pause, forward, and back. The same playback functions are available on the touchscreen display, which is how I preferred to use them. The remainder of the NW-ZX2's serious functions are accessible via the touchscreen.

The NW-ZX2 has a lithium-ion battery, for which Sony claims 33 hours of high-resolution audio playback per charge, and about twice that for MP3s. Expect a full charge to take about 4.5 hours. Also inside are a chassis of gold-plated copper, Sony's S-Master HX High-Resolution Digital Converter/Amplifier, and the headphone amp,

which Sony specifies as outputting 15mWpc. Overall, the NW-ZX2 feels nice and rugged, rather hefty in the hand—it weighs just over half a pound (235gm)—and its large touchscreen is a pleasure to use, especially in comparison with, say, the relatively tiny screen of the PonoPlayer.

The NW-ZX2 includes a number of DSP and EQ options: DSEE HX (Digital Sound Enhancement Engine), which “upscales your existing music to near high-resolution sound quality (corresponding to 192kHz/24-bit audio)”; ClearAudio+; Surround Sound, based on a Sony-developed proprietary sound-processing technology for headphone listening that offers a number of modes, including Studio, Club, Concert Hall, and Matrix; Dynamic Normalizer; and Equalizer, a five-band EQ. For DSD playback there are two user-selectable filters, Slow rolloff and Sharp rolloff, as well as a -3dB gain option that Sony claims can eliminate distortion with some recordings (-3dB is the NW-ZX2’s default setting). I’ll talk more about some of these features when I discuss the NW-ZX2’s sound quality.

To load music into the NW-ZX2,

connect it to your computer with the included cable, and drag and drop your music files into the Sony’s Music folder. You can also load music from a microSD card that you’ve first inserted in your computer with an SD adapter and dragged and dropped music to. The NW-ZX2 can also be connected to a network via WiFi to play network-attached music. I was able to easily attach to and play music from my QNAP NAS, on which I’ve stored my library of AIFF files. The NW-ZX2 also supports AAC (non-DRM), ALAC, DSD, FLAC, HE-AAC, Linear PCM, MP3, and WMA (non-DRM) file formats.

To use the NW-ZX2 to play music, tap its music icon: The Sony presents you with your library of stored music in Album view. You can also view your collection by All Songs, Artists, Genres, Release Year, Recently Added, Playlists (which you can create directly in the player), Recorded Songs, SensMe channels, and Cover Art View. The Sony’s Visualizer displays groovy patterns based on the music playing, but I’m not a big fan of visualizers; I prefer to use the battery to play tunes.

Playback options include a draggable

track-progress bar, the standard play/pause, forward, and back buttons, and repeat and shuffle modes. If you swipe the current song’s album-cover art, you’re presented with its metadata, including its bit depth and sample rate. Overall, I found the Sony app relatively intuitive and easy to use.

### Sound

“Autumn Leaves,” from Duke Ellington’s *Indigos* and featuring singer Ozzie Bailey (5.6MHz DSD, Columbia/High Definition Tape Transfers), is some seriously silky-smooth goodness. This 1957 stereo recording is like honey for the ears, and the Sony delivered just about every last ounce. If the NW-ZX2 had one overriding quality, it was clarity. It dug very deep into this recording’s depths, readily communicating every bit of microdetail, nuance, and fine-grained resolution while retaining a very convincing grasp on the overall sound picture.

Through my NAD Viso HP50 and trusty old Audio-Technica ATH-W1000 headphones, the NW-ZX2 dispensed gobs of well-controlled bass, enough that something like Caribou’s *Our Love* (24/96, Merge)

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## If the NW-ZX2 had one overriding quality, it was clarity.

sounded appropriately big and badass. There was also plenty of drive and dynamic slam—the music not only moved, it was moving, making it difficult for me to sit or stand still. During *Our Love*, I clicked through all of Sony's Surround Sound profiles; while they certainly shifted the EQ to offer different views on the recording, I found that I preferred my music straight, no chaser.

But while the NW-ZX2 had a nice amount of tone color, I've heard music delivered with more body and color. The PonoPlayer (\$399), with digital and analog circuits designed by Ayre Acoustics, has such a meaty and more colorful sound; especially in balanced mode, it can make a recording like

The NW-ZX2 is close in size to an iPhone.



*The Freewheelin' Bob Dylan* (2.8MHz DSD, Columbia/Acoustic Sounds) sound less thin. That meatier midrange does come at the expense of some of the perceived detail that the Sony dug out, so personal preference and the headphones used will make one player "better" than the other. In terms of pairings, I found the NAD HP50s better partners for the NW-ZX2—the Audio-Technicas themselves tend toward the bright and the lean.

Assuming that some readers use their portable players as part of their hi-fis, I lashed the Sony to my Pass Labs INT-30A integrated amplifier with a length of AudioQuest Victoria interconnect. Frank Sinatra's *In the Wee Small Hours* (2.8MHz DSD,

Capitol/Acoustic Sounds) sounded just lovely through my DeVore Fidelity The Nines: smooth, silky, refined—and sad. The relative thinness I'd heard through headphones was audible here

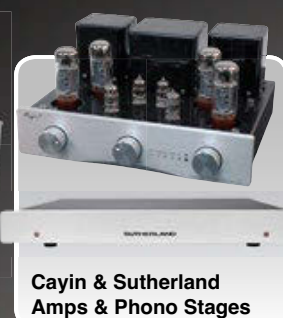
as well; I've heard more robust, more meaty sound from other players, such as the Pono. Of course, you can adjust the Sony's EQ settings, boosting or reducing to your heart's content, but tone color is not something I've found you can EQ in or out of a component's basic sound.

Back to my NAD HP50s. I played all manner of music through the NW-ZX2, including CD-quality sources, which could sound just lovely. Most of my digital files are of CD-quality, and I have no problems enjoying it daily. An old favorite, Don Cherry's *Art Deco* (CD rip, A&M), a superb-sounding recording engineered by Rudy Van Gelder, was all blurt and sizzle, as it should be. Cherry's pocket trumpet has a very distinct sound, and Billy Higgins rides his cymbals all over the place—the Sony did an excellent job of delivering the minute details of both. I've heard James Clay's tenor sax reproduced with more weight and a heavier helping of body, but overall, the Sony's sound was crisp, clean, and dynamically lively.

I know there are those whose attention is not held by CD-quality sound, but I'm not one of them. On the other hand, I don't often listen



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to lossily compressed music, which I find irritating over time. My library contains only a handful of MP3s, and they're there only because there's no other way to hear those recordings. One such track is the scrumptious and sexy live version of PJ Harvey and Björk singing the Rolling Stones' "Satisfaction" (look it up on YouTube, it's more than worth it). While this track can sound muddy and dull—it's a 128kbps MP3—the Sony NW-ZX2, with ClearAudio+ engaged, cleaned it up enough to provide a much more enjoyable listen. I can see how people with large libraries of less-than-ideal-sounding, lossily compressed music would appreciate the Sony's ability to deliver a more musical sound.

All of the recent wrestling in the "popular press" over lossy compression vs CD-quality vs hi-rez strikes me as nothing more than a bunch of intellectual (at best) puffery.<sup>1</sup> In reality, you'd be hard-pressed to buy an audio device with a DAC that does *not* support hi-rez audio. The only real holdouts are some smartphones and Apple. But if you're happy with your iPhone and lossy compression, more power to you. Those of us interested in bettering our musical experiences, even when using our portable devices, are blessed with an abundance of choices in all price ranges. And for Sony's new Walkman, there's the rub.

How does one differentiate oneself in a field already crowded with the likes of FiiO, Pono, LH Labs, Astell&Kern, HiFiMAN, and more? Of course, there's sound quality, and the Sony NW-ZX2 delivered a healthy helping of it. Then there are features. I have little interest in an audio device that replicates some of the functions provided by my smartphone. I don't go anywhere without my phone, so there's no need to duplicate such services as e-mail, calendars, etc.—but that's just me. Nor am I a big fan of EQing or adding DSP special sauce to my music—again, more a matter of personal taste than of absolute judgment. I imagine that those who have lots of recordings of less-than-ideal quality (eg, MP3s) will see the NW-ZX2's various sound-enhancement options, including DSEE

HX and ClearAudio+, as pluses.

And there's price. At \$1199.99, the NW-ZX2 is not inexpensive. Nor is it the most expensive portable player. The Astell&Kern AK240, which I reviewed in the November 2014 issue,<sup>2</sup> holds that distinction at \$2500, and while it's been a while since the AK240 left my premises, I'd say that it offers a bit more finesse, a bit more body, a bit more sweetness in the upper frequencies than the Sony. The AK240's build quality and industrial design are a notch higher, and it can function as a DAC and USB-to-TosLink converter—features that may influence a purchase decision one way or another.

In the NW-ZX2's favor are its DLNA and WiFi capabilities, which add to its appeal when used at home. Its ability to play music from my NAS-based library is a huge plus that I took great advantage of during the Sony's stay. Another appealing in-home feature is the Sony's Bluetooth circuit. I have Audioengine's B1 Bluetooth receiver here for review—I paired it with the NW-ZX2 to stream music to my main hi-fi, something that took all of two seconds.<sup>3</sup> While Bluetooth is lossy, I find that its convenience factor outweighs any sonic penalties, especially as any friend with a smartphone can hook up to my hi-fi and be wirelessly playing their music through it in seconds.

#### Does the Sony Walk the Walk?

Sony's NW-ZX2 High-Resolution Walkman has a lot going for it, including very clean, incisive, lively sound with a good helping of well-controlled, well-rounded bass. I enjoyed using it to listen through a goodly amount of my music library, both stored on the Sony itself as well as streamed via WiFi from my NAS, and from hi-rez to CD-quality to even a few MP3 files. There are other options out there, but take a close look at the features and functions the Sony offers; if they match your needs, put the NW-ZX2 on your "listen to" list. ■

*Michael Lavorgna (michael.lavorgna@audiostream.com) is the editor of AudioStream.com, a website for all things computer audio.*

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1 See [www.audiostream.com/content/breaking-news-not-everyone-loves-pono](http://www.audiostream.com/content/breaking-news-not-everyone-loves-pono).

2 See [www.stereophile.com/content/astellkern-ak240-portable-media-player](http://www.stereophile.com/content/astellkern-ak240-portable-media-player).

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# MUSIC IN THE ROUND

BY KALMAN RUBINSON

THIS ISSUE: KR reports on surround sound at the 2015 CES and listens to Classé's Sigma SSP and Sigma AMP5.

## Classy Acts

I spent most of my time at the January 2015 Consumer Electronics Show exploring amps and preamps for *Stereophile's* on-line coverage of the show,<sup>1</sup> but there were a few items of interest to fans of multichannel. There were demonstrations of Dolby Atmos, Auro3D, and dts:X, but these mostly focused on movies—save for Auro3D's thrilling demo of 2L's *Magnificat*—an album of music by Arnesin, Gjeilo, and Kernis, with Anita Brevik conducting solo singers, chorus, and the Trondheim Soloists and recorded in a cathedral (Pure Audio Blu-ray, 2L-106-SABD). The ambience was more enveloping with Auro3D's added height dimension, compared to what I hear from 5.1 systems, but I'm not sure whether this will be enough to encourage music listeners to make the necessary investment.

More immediately significant were three presentations that can have a big impact on the streaming of multichannel files. Many software players will handle high-resolution files in multichannel, but it's likely that the vast majority of them are sending those files to A/V receivers and preamplifier-processors via HDMI; aside from the exaSound e28, all other multichannel DACs are targeted at professional users.

Well, exaSound now has company. After a long wait, Merging Technologies, producers of the Pyramix audio workstation system used in HD/DSD recording studios, showed their NADAC. To be available in 2-, 8-, and 16-channel versions, it accommodates PCM up to 384kHz, and DXD and DSD up to 11.2MHz. Inputs include coaxial and optical S/PDIF, two AES-EBU, word clock, and, most interesting, a gigabit Ethernet port via Merging's Ravenna protocol, which ensures a clock precision of one nanosecond from any music server, player, or streamer. This can be mediated by ASIO (Windows), CoreAudio/DoP (Mac OSX), or through a direct connection (Linux). Analog outputs are via RCA, XLR, and headphone jacks. The two-channel NADAC will cost about \$7500; clearly, the eight-channel version will not be an entry-level product for multichannel streaming, but it will create buzz. I hope to have one soon.

That hoped-for entry-level DAC might be coming from a familiar and innovative source: miniDSP. Reflecting on their back catalog of multichannel equalizers and network audio interfaces, it didn't surprise me to see the prototype of an eight-channel power amp with DSP and a USB input; what surprised me was the estimated cost: \$750. When I asked



**Meridian's Bob Stuart has assured me, more than once, that MQA is entirely compatible with any number of channels.**

Managing Director Tony Rouget, "How about losing the power amps and halving the price?," he smiled and showed me the nanoAVR DLA (above). This adds to the nanoAVR an eight-channel DAC board for analog out from the HDMI source. "But how about a USB input?" That, too, appears possible—miniDSP has announced development of the miniDAC-8, with an

AK4440DAC chipset. Combine that with their established USBStreamer product at the right price and it will open up multichannel file streaming to nearly everyone who is interested.

Of course, as all of us know who've been downloading and filling up terabytes of storage, hi-rez multichannel files are huge. So, as we wait for Internet streaming speeds to rise and the costs of storage hardware to fall, Meridian's MQA system allows a 24-bit/48kHz file to contain higher-rez information by repacking the information above 24kHz into a region below the file's audible noise floor.<sup>2</sup> While Meridian has awed us with the quality of its MQA demonstrations, let's not lose sight of the fact that it is an efficient and functionally lossless compression algorithm that will speed transmission and save storage space. Moreover, Meridian's Bob Stuart has assured me, more than once, that MQA is entirely compatible with any number of channels. Of course, that doesn't help us now, but if MQA succeeds, the door is open to much more efficient multichannel storage.

### CLASSÉ SIGMA SSP SURROUND-SOUND PREAMPLIFIER-PROCESSOR

I reviewed Classé's flagship preamplifier-processor, the SSP-800, in 2011,<sup>3</sup> well after its original release, because I wanted to wait for the HDMI 1.4 update and its attendant audio format support. It did just about anything one could expect of a modern pre-pro, and its sound was excellent, whether from digital or analog sources, or whether it processed the

sources or transmitted the analog unmolested. Since then we've seen the rise of wireless and wired streaming, but the SSP-800 (\$9500) can do that fed by an S/PDIF source or a

1 See [www.stereophile.com/category/ces-2015](http://www.stereophile.com/category/ces-2015).

2 See John Atkinson's explanation at [www.stereophile.com/content/ive-heard-future-streaming-meridians-mqa](http://www.stereophile.com/content/ive-heard-future-streaming-meridians-mqa).

3 The actual model reviewed was the functionally identical CT-SSP; see [www.stereophile.com/content/music-round-43-page-3](http://www.stereophile.com/content/music-round-43-page-3).



good external DAC; even today, I'd be hard put to criticize the SSP-800.

Four years later, Classé has come up with the Sigma SSP: smaller, lighter, sleeker than the SSP-800, and little more than half the price: \$5000. (The Sigma SSP measured 16.9" (433mm) W by 3.7" (95mm) H by 14.4" (370mm) D and weighs 18.1 lbs (8.21kg). All of that is to the good—but has anything been lost?

Features? There's no doubt that the pre-pro market is a varied population. At one end are those who want a pre-pro to anchor a home theater with multiple screens while feeding and controlling remote A/V zones. At the other end are those who want a pre-pro with minimal video facilities but a wide array of analog and digital inputs, including phono, and the ability to bypass any digital conversion for all analog signals. No one product suits all, and, as I've been told by Classé's Dave Nauber, many difficult decisions led to the Sigma SSP, which occupies a cannily chosen middle position a bit closer to the latter extreme.

Consequently, the only video inputs or outputs are HDMI. There are seven HDMI inputs on the rear panel and

one on the front, to accommodate lots of modern sources, but only one HDMI output. There are three coaxial (RCA) and two optical (TosLink) digital inputs, but only one coaxial (RCA) digital output. The analog inputs comprise one pair of balanced (XLR) and two pairs of single-ended (RCA) jacks. The analog outputs are one pair of XLRs and eight pairs of RCAs. The Sigma SSP doesn't support multiple zones, but one pair of its RCA outputs can be assigned as an L/R pair for a remote location or for multiple subwoofers. The SSP-800 has a parametric equalizer with up to five bandpass filters per channel; the Sigma ups that to an even more effective nine filters per channel. So the Sigma SSP has more HDMI inputs than the SSP-800, but doesn't support composite or component video. Digital in/out is comparable, as is stereo analog in/out, but the Sigma lacks an analog 7.1-channel input as well as the full array of XLR outputs for all channels.

Here's where the cost analysis came in. How many users today require the 7.1 analog input when all formats but DSD can be decoded by the pre-pro? As for the XLR outputs, Nauber

claims that allocating a given budget for each single-ended input permitted engineering to optimize performance for that input, compared to spreading it across the virtually doubled number of parts required for a balanced output. Still, XLR in and out is maintained for L/R, and, significantly, you can avoid A/D conversion to enjoy an entirely analog signal path for all stereo sources simply by opting for digital bypass mode (all DSP processing switched off). "If no processing is applied, analog signals remain in the analog domain, even if not specifically set to digital bypass."

But the Sigma SSP adds support for DLNA audio via Ethernet and AirPlay—ideas not yet born when the SSP-800 appeared, so we didn't miss them. Today, however, they're almost essential, and the Sigma's implementation of them is excellent, supporting a variety of compressed and uncompressed formats, including ALAC, FLAC, and WAV up to 24/192—all two-channel only, of course, as on every competing product today.

The specs of the Sigma SSP and the SSP-800 are a toss-up. The SSP-800 accepts a marginally higher input

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## The Sigma SSP adds support for DLNA audio via Ethernet and AirPlay.



level in analog bypass mode, and has a marginally narrower range of frequency-response deviation. On the other hand, the Sigma SSP has lower claimed THD+noise for digital sources, marginally higher output voltage, and slightly better signal/noise ratios for analog sources. But the differences are so slight as to be inconsequential.

Aside from the additions of

headphone, HDMI, and USB connectors, the front-panel design is classic Classé: to the left of the crisp and responsive touchscreen are buttons for On/Standby, Menu, and Mute. To the right, nearly flush with the faceplate, is a large volume knob that responds reliably to the lightest touch. A small remote control is provided. It seemed too simple at first, but after setup, it was entirely capable of normal operations.

Setup procedures seemed identical to those of other Classé controllers, so I was able to jump right in using the Sigma SSP's touchscreen or the OSD. The screen's ability to display live video will be particularly convenient when the Sigma SSP is kept in a closet or other remote location. I connected my Oppo BDP-103 universal Blu-ray player, music server, and cable box to the Classé's HDMI inputs and renamed them. The Oppo was also connected to a coax S/PDIF input and a stereo analog input, and the Sigma's RJ45 jack was connected to my home network. For these inputs I created two configurations: one with bass management and EQ, one without. The latter was for the input from my Mac mini-based music server, which has its own bass management, and Dirac Live EQ. The former was used for all other sources.

At first, I amplified the Sigma SSP's output with my Bryston 9B-SST2 power amplifier, but I did most of my listening with Classé's Sigma AMP5 (reviewed below). In both cases, I used the Sigma SSP's XLR outputs for L/R and its RCA outputs for the other channels, including the subwoofer. I

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Sigma SSP internals (right). The HDMI 1.4 board is at the rear left and can be replaced with HDMI 2.0/600MHz when those parts become available. Even the TI-based DSP PC module may be replaced by one with 3D audio decoding features in the future.



**The Sigma SSP can be regarded as a superb stereo analog preamp, and all the rest of its bells and whistles as gifts.**

began listening to the analog stereo feed from the Oppo via digital bypass (which many of us call analog bypass) and, with either amp, the Sigma SSP offered a strikingly clean, transparent sound that immediately conjured comparisons with the SSP-800 and other very high-end controllers or preamps. For this, I used my go-to track, mezzo-soprano Marianne Beate Kielland singing Finzi's "Come Away, Death," accompanied by pianist Sergei Osadchuk, this time with the Oppo playing the SACD (2L-064-SACD). Further listening to a wider range of sources only reaffirmed that the Sigma SSP can be regarded as a superb stereo analog preamp, and all the rest of its bells and whistles as gifts.

The S/PDIF input fed from the Oppo sounded even better than the analog feed, while the A/D-D/A through the Sigma SSP was marginally but inconsequentially less so. I was more than happy with my local server feeding multichannel files to the Sigma

SSP via HDMI at PCM rates of up to 24/192. From the remote server via DLNA/Ethernet, the sound was entirely equal in quality but limited to two-channel files. As a result, I quickly stopped making these tedious comparisons and moved on to more meaningful work, with other sources with two or more channels.

I used the Sigma SSP constantly over several weeks, and everything I tossed at it sounded as good as ever. More than occasionally, it offered more detail, and a more relaxed sound overall. This was particularly true after I'd transferred REW-derived correction filters for each channel, but even unfiltered there was a satisfying balance, coupled with strongly delineated bass and really wide dynamic range. The Sigma SSP offered an impressively spacious yet detailed re-creation of a symphony orchestra from one of my 2015 picks for "Records to Die For," Dvorák's Symphony 8 with Manfred Honeck

leading the Pittsburgh Symphony (SACD/CD, Fresh!/Reference FR-710SACD)—and presented an audiophile favorite, Sara K.'s *Hell or High Water* (SACD/CD, Stockfish SFR 357.4039.2), with all intimacy, warmth, and slam one could desire.

In designing this lower-priced preamplifier-processor, Classé seems to have made all the right choices without sacrificing sound quality in any way. In fact, I suspect that it may be an advance on its older sibling, and on other high-end processors of only a few years ago. A few of the SSP-800's features were eliminated, and it will be matter of personal preference whether those omissions are a problem. For me, they aren't; moreover, the new features and cosmetics and the sonic clarity are more than adequate compensation. With digital or analog sources, the Classé Sigma SSP sounds more like a top-tier analog preamp than any pre-pro near its price. As such, it has carved out for itself a unique market niche.

### CLASSÉ SIGMA AMP5 FIVE-CHANNEL POWER AMPLIFIER

For the Sigma series power amplifiers, Classé took the switch-mode power supply and proprietary class-D amplifier technology they'd lavished on their Delta CA-D200 amplifier (\$5000) and put it into a new chassis for the Sigma AMP2 stereo amplifier (\$3500). What's notable is that the five-channel Sigma AMP5, with the same power supply and class-D amp, and identical watts-per-channel and stereo specs, costs only \$5000. If there's a catch, it's that the Sigma AMP5 is rated at 200Wpc

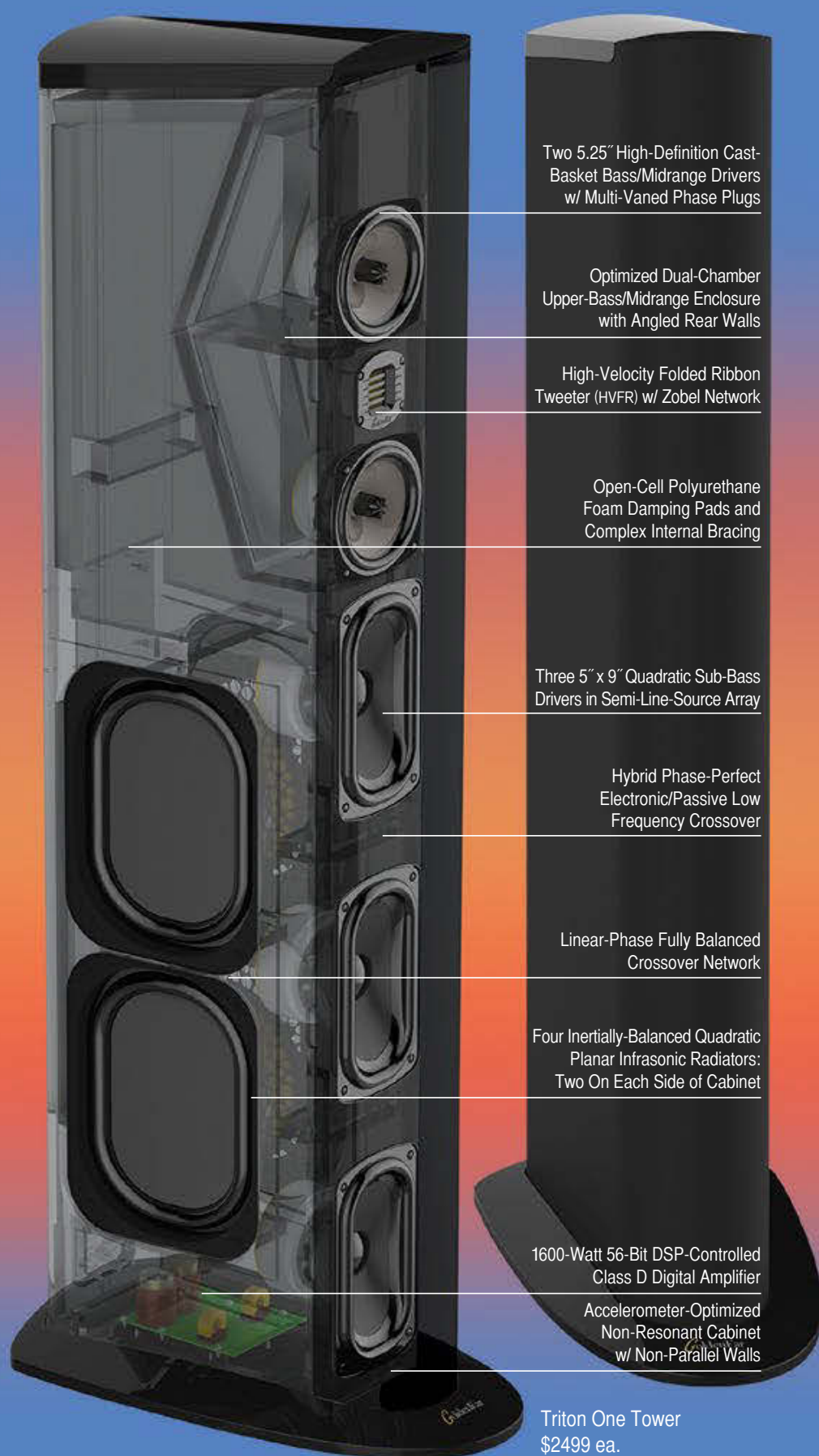
RMS into 8 ohms, all channels driven, but can achieve 400Wpc into 4 ohms only with two channels driven—like the CA-D200 and the Sigma AMP5. This is due to limitations in AC mains/power and, bench tests aside, will not limit real-world use.

The Sigma AMP5 weighs 23 lbs and is designed into the same small, sleek case as the Sigma SSP. The two models' front panels, too, are identical, except that AMP5's central screen is merely decorative, and its only control is a matching On/Standby button. The rear panel is also similar to the

SSP's, with five channels of RCA inputs, but only two channels with XLR inputs. Of course, it's logical that one would usually choose the latter for the main Left/Right channels, as I did, but there's nothing to keep you from using all of the RCA inputs, or even from using the XLR inputs for any other channels. On the input (left) side of the rear panel are a USB port (for firmware updates), an RS232 and CAN BUS connectors (for command and control), and IR and trigger in/outs, along with an IEC power port and a fuse post. On the right are five

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*"... the mere fact that it is not unreasonable to compare the sound of the \$4999 (pair) Triton One with the sounds of speakers costing tens of thousands of dollars more per pair says a lot about their level of performance ..."* – Robert Deutsch, *Stereophile*



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– *Stereophile*

The world's most critical audio reviewers have been absolutely blown away by the outstanding performance of the Triton Ones, as well as the exceptional value that they represent. *Stereophile's* Robert Deutsch wrote that, *"The Triton Ones sounded quite spectacular"* and observed they were, *"extraordinarily revealing ... I noticed musical details that had previously been inaudible"*. In addition, he raved that, *"imaging was precise ... the Triton Ones were soundstaging champs"*. John Atkinson noted that they, *"behaved as a point source that completely disappeared"*, with bass that, *"knocked me back in my seat"*.

## *"An absolute marvel ... Triton One shames some speakers costing ten times as much."*

– Caleb Denison, *Digital Trends*

The Triton One is an evolutionary speaker that builds upon all the advanced technologies that have made the Tritons mega-hits around the world. This new top-of-the-line flagship was engineered to deliver even better dynamics and bass than the extraordinary Triton Two, along with further refinement of all aspects of sonic performance. How well have we succeeded? In the words of HD Living's Dennis Burger, the Triton One delivers, *"... the sort of upper-echelon performance that normally only comes from speakers whose price tags rival a good luxury automobile"*.

## *Triton One "creates visceral, tangible waves of pure audio bliss"*

– Dennis Burger, *HD Living*

Great sound is what it is all about and the Triton Ones are, as HiFi+’s Chris Martens raved, *"jaw droppingly good ... one of the greatest high-end audio bargains of all time with a dazzling array of sonic characteristics that are likely to please (if not stun) the finicky and jaded of audiophiles"*. The Ones were specifically engineered to excel with all types of music as well as movies. Best of all, they offer previously unheard of value, as Brent Butterworth wrote in *Sound & Vision*, *"I heard a few people saying the Triton One sounded like some \$20,000-and-up high-end towers, but I disagree: I think they sounded better than most of them"*. Darryl Wilkinson summed them up best, *"A Masterpiece ... GoldenEar has fully ushered in the Golden Age of the Loudspeaker"*. Hear them for yourself and discover what all the excitement is about.

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Sigma AMP5 (above) shows the 5 pairs of speaker outputs, two of them with both RCA and XLR inputs.

Sigma Amp5 internals (right). The proprietary circuitry and DSP effectively eliminate dead-band-time when both halves of the amplifier are off; it is similar to switching distortion in a linear class-AB amplifier. The SMPS with Power Factor Correction pulls AC power more smoothly so that components sharing the same AC Mains circuit are uninfluenced.



pairs of multiway speaker posts.

I slipped the Sigma AMP5 into the rack, and connected it to the Sigma SSP with XLR (L/R) and RCA cables. I also linked it to the SSP via the CAN BUS (RJ-45) connectors, which let me control and monitor the AMP5 from the SSP's display and OSD. Nothing unusual or problematic.

Having switched directly over from the Bryston 9B-SST2, I immediately heard that the Sigma AMP5 opened up the midrange and ameliorated the slight nasality I've come to expect from my Paradigm Studio60 speakers. Of course, I ran it through the gantlet of standard music test tracks, from solo voice (Marianne Beate Kielland singing "Come Away, Death") to Saint-Saëns's "Organ" Symphony, as performed by Christoph Eschenbach and the Philadelphia Orchestra, with organist Olivier Latry (Ondine ODE 1094-5). The midrange and treble were pure and smooth—something of a surprise for a class-D amp—and the bass was powerful, delineated, and extended. More important, the

Sigma AMP5 imposed no coloration or character on the music, but seemed utterly transparent. I've been enjoying a new recording of Mozart's *Requiem*, with Masaaki Suzuki leading the Bach Collegium Japan (SACD/CD, BIS-2091). This is a new version of the work, completed and edited by Suzuki's son, Masato (organist for this performance), and it doesn't so much surprise as electrify. The AMP5 revealed an open, continuous soundstage populated by an array of players and singers, each retaining a presence in space—presences that, to my surprise, closely matched the positions of their images in the booklet's centerfold picture.

I heard a different kind of electricity from Alison Krauss and Union Station's *Live* (2 SACD/CDs, Rounder ROUN0515). This set of greatest hits was performed before an enthusiastic audience who assert their presence in the surrounds; the band, up front, is very clear. Despite the lack of any discrete center-channel information, there is no gap or deficit in the

**Classé has brought to the Sigma AMP5 their acknowledged high-end sound quality at an appealing price.**

presentation of the soundstage. With the clarity and dynamics of the Sigma AMP5 and SSP, I can say, with little hyperbole, that I heard every voice and every plucked or strummed string instrument in this stirring concert, almost as if I were there.

As with the Sigma SSP, Classé has brought to the Sigma AMP5 their acknowledged high-end sound quality at an appealing price. I've been impressed with several recent class-D amps, but the Sigma AMP5 brought me a new level of performance that easily competes with or outperforms comparable nonswitching designs. That's progress.

#### Coming up next in the Round

Speaking of value, next up is Emotiva's long-awaited XMC-1 preamplifier-processor. It's extremely full-featured, made in America, is now shipping with Dirac's Live room correction, and costs \$1999. ■

Kalman Robinson (STletters@sorc.com) combines a career teaching neurobiology with shuttling between surround-sound-outfitted homes in Manhattan and Connecticut.

#### CONTACTS

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# Trip & Jitter

**MUSIC AND  
MOVEMENT IN  
THE ELECTRONIC  
WORLD OF  
DAN DEACON**

by  
**ROBERT  
BAIRD**

**Violet- and orchid-colored LED banks shimmer across the room.**

Green and pink spots radiate out and back. A steady stream of beats and keyboards from other electronica luminaries rumbles out of the speakers. Let's dance! Or maybe just listen?

Onstage, Dan Deacon is busy tweaking his gear. Out on the floor, the audience is oddly antsy. To fight the waiting, one woman hangs on her boyfriend. Clumps of hipsters convivate. Very strong drinks (a sponsorship deal?) flow for seven bucks a pop. Anticipation thickens. Impatience turns to pacing. Young men make solo air grooves. The LED black lights on stage go up, and sounds begin to burble and throb from the center-stage table full of bright pink and purple gear connected by cables green, yellow, orange, and every other color of the rainbow. After one song, to which everyone politely stands and listens, the crowd forms a circle and the dancing begins. What can only be described as a line dance follows. Crowd surfing is epidemic. Rather than random gyrations, these dances have prescribed moves and formations. This is no ordinary night at Rough Trade in Brooklyn: these people showed up knowing what to expect, and knowing their parts.

The next morning, Deacon and I are supposed to talk about his new record, *Gliss Riffer*. A follow-up to his most mature and intriguing opus so far, *America* (2012), *Gliss Riffer* is a more pop affair, definitely a lighter moodiness—but it also has a subtle dark side, Deacon's most accomplished lyrics yet, and a profusion of sounds (such as acoustic tabla) not present on its celebrated predecessor. When he's not available at the appointed time, I'm not surprised. Being an indie electronic maestro is harder than it looks. An hour and a half later, we finally connect.

"Sorry I missed your call," Deacon says, "I completely slept through my alarm. I normally don't do that, and I feel like a jackass."

Since the release of his *Bromst*, in 2009, electronic musician, composer, guitarist, tuba player, singer, and dance impresario Dan Deacon has been making some of the most challenging and danceable music in the electronic genre. Before *Bromst*, Deacon had already released 12 recording projects on such small labels as





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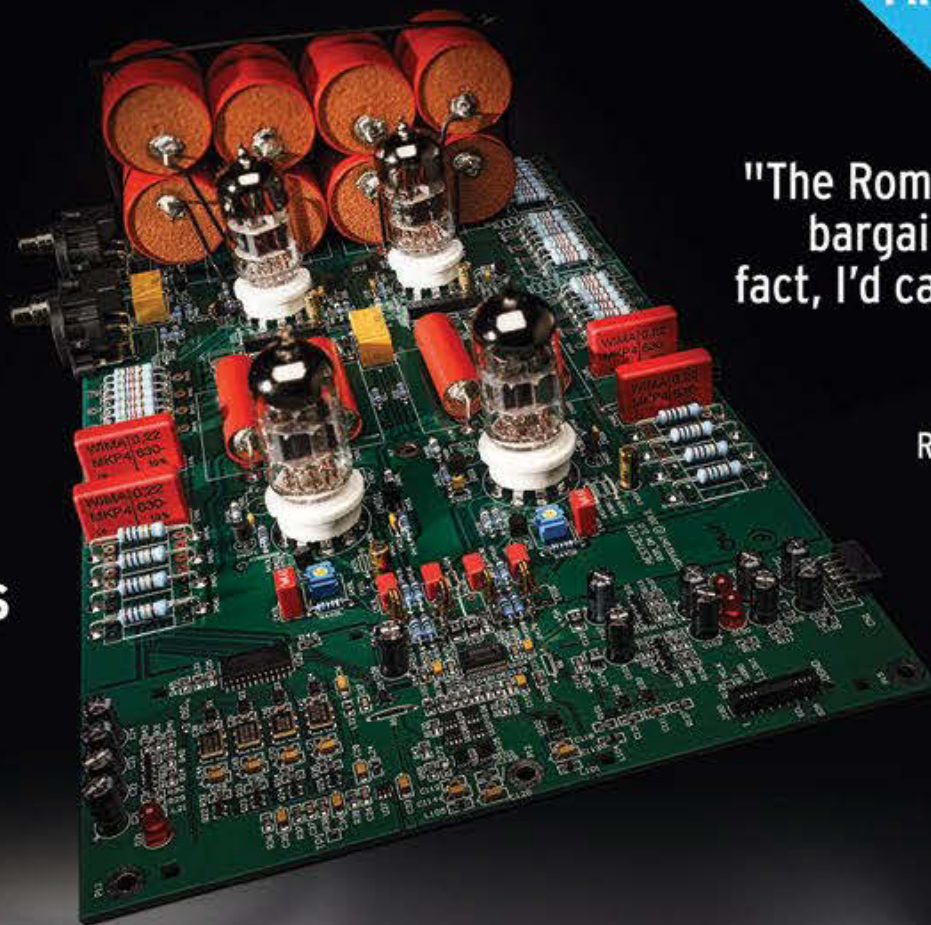
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Standard Oil, Comfort Stand, Psych-O-Path, and Mistletoe. Early on, he showed gifts for layering, playful humor, and creating irresistible dance music. But as Deacon has evolved, he's begun to integrate acoustic instruments, ever more intelligible lyrics, and his own singing (albeit through processors), while also composing contemporary classical pieces that have received positive reviews. He's proved that, despite the cold burbling and beats of machinery, he and his music have soul. His art, clearly influenced by pioneers of electronic and machine music like cartoon music genius Raymond Scott and player piano composer Conlon Nancarrow, has become a blend of classical, experimental, psychedelia, and contemporary classical, all of it generated by computers and racks of effects, particularly software and hardware synthesizers. Some of Deacon's favorite tools, according to SoundOnSound.com, include an Ibanez PM7 phase modulator, a Wavetek oscillator, a DigiTech Whammy pedal, a Casio keyboard, and a Behringer digital mixer. Also a master marketer, Deacon has an inviting DJ stage presence that has cultivated a hugely loyal following who arrive at his gigs fully expecting to be part of the show.

"Well, they are the act," he says, not missing a beat (sorry). "You can't have a good show without a good audience. You can go see a band that's terrible, and if the audience is going wild, the show is great. Or, vice versa, if a band is giving their all and the audience is lackluster, the show tends to be lackluster."

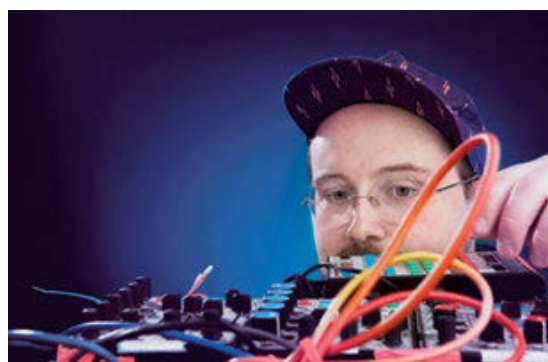
A big, bearded bear of a guy, Deacon was raised in West Babylon, Long Island. He now lives in Baltimore, and is a known brainiac and a good talker.

**Robert Baird:** *So there are two Deacons in one body?*

**Dan Deacon:** It's almost like I have two separate practices. I have, like, a studio practice and a performance practice, and they both inform the other. They are like two sinewaves that are slightly out of phase, and sometimes they connect, but other times they are vastly separate.

If I think I'm gonna play it live, I'll probably add some drums, I'll think about tempo more, I'll think about density and how it comes out of the PA system. Are there any audience activities or participation that we can do during this song? If I'm not gonna play it live, it becomes much freer.

**RB:** *So, much like being an audiophile,*



*composing electronic music is a solo pursuit, right? On Gliss Riffer, there are more vocals in your music than ever before. Is playing a live instrument on stage next?*

**DD:** I keep thinking about the luxury of having band members—if you had someone who writes one part, and then you write the other part, and then one person puts it together, and then you record it. You play the same instruments every time. I feel like, in electronic music, it's assumed that your sound is gonna drastically change from record to record, track to track even. And I like that. Especially because electronic music is so much about texture. And I'm very drawn to texture-driven music. And there's something I envy about a band that can get a review that doesn't talk about how it's a negative thing that it sounds like their own work!!

**RB:** *Perhaps the biggest reason why a lot of electronic music is overlooked by those who care about sound—and want to listen rather than dance—is that much of it is flat, one-dimensional and compressed beyond description. In many cases, it's all about being LOUD to the detriment of everything else. As an electronic composer, what is your relationship with compression?*

**DD:** When I first started, I was running everything to the red. I was letting the mixer maxing out be my compressor or limiter. And I liked that, but I also had no idea what I was doing.

You can't really have a record without dynamics. If you're working with electronics, you're sculpting sinewaves. You're flying in waves to make sinewaves not sound like other sinewaves. And you're trying to take



pre-existing sounds and morph them, restructure them, and I think there are very few ways to do that better than with compression. You can really completely and radically alter a sound with a beautiful compressor. I can't imagine making music without compressors. They're just some of the best effects.

But you want to make sure you're not crushing your dynamic range. It's like having too much reverb or too much anything—it's too much. I think about effects as spices. I love a gram of salt, but I also like the chicken I'm putting it on. I still want to taste the chicken and know it's chicken. Then, sometimes, I don't. Sometimes I want to coat something in the effect—I want to hear the effect as much as I hear the sound. But everything has its place.

**RB:** *So in the loudness wars, you're on the side of more dynamics and less compression?*

**DD:** Now I would be. The loudness wars . . . I think it changes. People have become more headphone listeners. I don't want to have to listen to an album at half volume or full blast. I want to listen where it's comfortable. And I want to hear everything still audible in any environment. I think that's what mastering is: you can still hear the record at any volume. I want to hear the loudest shit and the quietest shit, no matter where I am. But I still want there to be range. And that's hard. It's kind of like thinking like an oscillator. You have your macro tune, your large giant sweep from 20Hz to 20kHz, and you've got your micro tune that will just bring you an octave in either direction, and I want my listening experience to be the same way. I don't want to have to be exclusively in a pristine listening situation. People listen to their music coming out of laptop speakers. People listen to their stuff coming out of earbuds. Or really amazing headphones. And when I was mixing, I kept thinking, like, How do I listen to music? How do I see other people listening to music? and What is the role of music?

**RB:** *To delight? To enlighten? To remind you how many more records you need for your collection?*

**DD:** What is the percentage of people who sit in a chair and put on a record, with balanced speakers, and listen to it the same way they would watch a movie or read a book? [laughter at both ends of the line] Okay, among non-audiophiles? It's very, very slim. You wanna make sure that, in your produc-



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tion, you're not pulling your audience out of the record by either being so loud or so quiet. Music is one art form that requires an imagination. So much of music is forcing you to imagine what it is. Sound is such an abstract thing. A lot of it depends on tone, and the tone is also being colored by the area in which it is being listened to, and the attitude and the atmosphere and the activity of the listener. And so you want to make sure that all of your production enhances that and doesn't cause any moments for the bubble to burst. It'd be like a giant red square in the middle of a film for a second. People would be like, What is that? Why is that there? I'm no longer in the zone!

**RB:** You've written a number of classical compositions. Among the best known are: *Ghostbuster Cook: Origin of the Rid-dler* [performed by So Percussion at Merkin Hall, New York City, in 2011]; *Fiddlenist Rim* [performed by Ontario's Kitchener-Waterloo Symphony, in 2011]; and *Take a Deep Breath* [performed by So Percussion and Matmos at Carnegie Hall in 2012]. Tell me about your relationship to classical music. Are there more works yet to be played?

**DD:** I feel like classical records across the board need to be compressed a little bit more, if only for when I'm not listening to them on my hi-fi in my library, but for when I'm listening to them in a car or on a plane. When it drops below pianissimo, I'm not hearing shit. I'm just hearing the rumble of the plane. So I feel like they could pull more from pop and rock production. The reason why some modern classical recordings are so awesome is because there's a nod to that. Records like [Philip Glass's] *Glassworks* is like the closest thing to a pop record as he could make. But there's still endless dynamics, and you can hear the textural shifts when the instruments go from like single forte to triple forte.

Dynamic becomes just as important as pitch content, because if the whole thing you are doing is trying to get an instrumental blend, you need to ensure your dynamic blends are accurate. And if you know you want this low, beautiful, brassy flute voice, then you can't have other woodwinds and brass whiling out on top of it, or it's just gonna get lost. But you can do that with electronic music. I can take that sample of an isolated flute, and I can raise it up so it's sitting there. With *America*, I wanted to do that. I wanted to take acoustic instruments and treat them as if they were electronics. But



## I'M REALLY GLAD I'M NOT POPULAR, BECAUSE I'D BE SCREWED.

with *Gliss Riffer* I wanted to do the opposite. I wanted to give space and room to breathe and a wide dynamic within these voices. I wanted to make sure a soft, fluttery sense on the song "Feel the Lightning" wouldn't get drowned out by a distorted other sense.

**RB:** So what's the future of the classical composing side of your life?

**DD:** Actually, [classical composer] is what I went to school for [at the Conservatory of Music, SUNY Purchase], and that's what I thought I was going to do. I made computer music, like pop-based music, as a hobby, for fun. I started quickly realizing, as I was getting out of school, that I haven't been able to find any student players to play any of these pieces. How the hell am I gonna get anyone to play them ever? I have no money. Nor do I have an audience. People will watch us do this, but I can't pay you.

I like working with ensembles in classical environments, because there's an entirely different psychology to the audience. When you're playing something where movement isn't involved, where you don't expect that audience to dance or have some sort of physical reaction to the sound, you can do very different things with it. Playing Merkin or Carnegie, a whole new set of tools emerges, and other ones become inappropriate.

I had started working with live percussion in several collaborations, then the thing at Carnegie, and the orchestra up in Canada, and I just kept thinking:

Music is gigantic. It's like an ocean. It's not like a lake, where I can swim from one side to another. I can't even swim from top to bottom, let alone from side to side. I'm really glad I'm not popular, because I'd be screwed. I'd have to write more music that sounds like the music that I'm currently making. I feel like I live in this shrinking middle class of musicians where I can experiment. I feel like a small restaurant that can change the menu regularly.

**RB:** Tell me about the note on the new record that credits the "Coyote Point Best Western, San Mateo, CA" as being one of the places where additional recording took place.

**DD:** I started recording *Gliss Riffer* in June and July last year [2014], and I was going to mix in August. And all of a sudden [an opening slot] on the Arcade Fire tour came up, and it would have been insane not to do it. But I didn't want to lose the momentum of recording. I wanted to keep going. It would have taken me so long to refind a groove.

So every downtime and every moment that I could, I'd mix. But hotel rooms sound like crap. They're boxy. I was looking for practice spaces or studios just to rent for the day. And almost everywhere that we had a day off, I found them—like in Seattle or Los Angeles. But when we were in the middle of nowhere, I kind of had to work with hotels. This one Best Western had no parallel walls. You could tell it was almost like they built the room and then were like, "Oh shit, we forgot the bathroom." I went in there, and it was pretty close to dead, which is what I like. I went down to the front desk, and I just asked for as many comforters as they would give me, and I got like two dozen pillows and tons of blankets. I put all the pillows in the corners as bass traps. Put all the comforters over the curtain rod for the shower. Took the mirror off the wall. Took the vent out of the ceiling and shoved towels up there. Put towels along the door and rammed it shut. Turned all the lights off to see if any light would get through, and it was pretty much air- and light-tight. And since the walls weren't parallel, it sounded decent. So I tracked a lot of the vocals in there that night for the track "Learning to Relax."

I loved *The A-Team* as a kid. I liked it when they went to a hardware store and then built a tank. I'm the least handy person on the planet, but I feel like, with enough duct tape and pillows, you can make anything. ■



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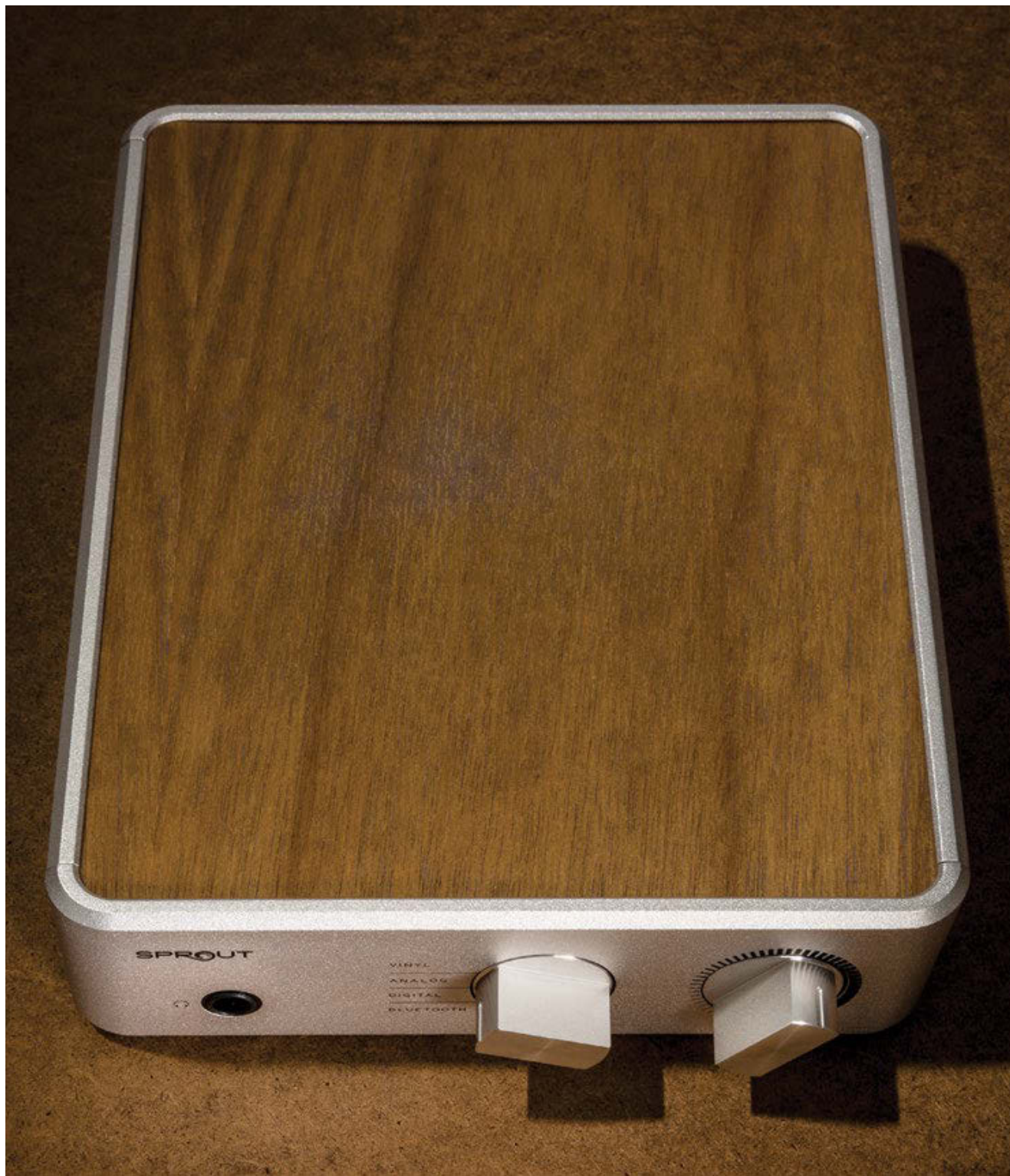
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**I** find small humans more beguiling than big people. My favorites are the two-footers—those little two-year-old boys with a kind of wobbly, bent-kneed stride that dips like a blues song every fourth step as they stagger ahead of their watchful parents. I like three-footers too—sprightly three-year-old girls who dress better than their moms and never need a lifestyle consultation. Whenever we see one of these cheerful, bouncing young'uns coming toward us on the sidewalk, I smile and my dog's tail wags. Their bright faces and excited voices make me think, *You go, little sprouts!* These miniature humans' special beauty is that they still possess their full *force de vie*.

But perhaps you haven't heard—another beguiling little Sprout is bouncing about. This one was crowdfunded by Kickstarter and developed by Scott McGowan, PS Audio's sales director and son of founder Paul McGowan. The Sprout



## SPECIFICATIONS

**Description** Integrated amplifier. Inputs: phono (moving-magnet), analog (3.5mm), USB (24-bit/192kHz), digital coax (any sample rate and bit depth up to 24/192), Bluetooth (built in). Maximum output power: 50Wpc into 4

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**Serial number of unit reviewed** SPR-A1-410596 "Made in China".

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And that's only a teeny bit of the story . . .

### The PS Connection

Paul McGowan and Stan Warren founded PS Audio in 1974. PSA has always reminded me of such legendary corporations as Dynaco and Hafler—estimable companies that built their brands by making high-end products even a starving artist could afford. Like Saul Marantz, whose first product was the legendary Model 1 Consolette preamp (1952), Paul McGowan and Stan Warren's first product was a phono-only preamp. This popular, low-priced model—which, not unlike the Sprout and the Consolette, came in an attractive case of wood and aluminum—was followed by an equally innovative line-level preamp, which could be switched between active (with 0dB gain) and passive operation, where the only device in the signal path was the volume-control potentiometer. These models were followed by another development à la Marantz's Consolette: a preamp whose mains transformer and power supply were housed separately, to isolate them from the more delicate signal-path components. Today, these engineering strategies



**I see no reason why the myriad inventions of our digital era can't make even the highest-quality music playback easier and more affordable.**

are common; 40 years ago, they signaled "serious hi-fi."

PS Audio didn't get my full attention until around 1980, when they introduced their unique, shoebox-shaped, Model 2 amplifiers. To my young ears, they played music as well as the bigger, more expensive amps from SAE, Mark Levinson, and Phase Linear. Back then, I built Hafler's DH200 power amp and DH101 preamp from kits, but aspired to the slightly more expensive PS Audio separates. I knew they offered their own version of extraordinary value, while

sounding more open, relaxed, and sophisticated than the Hafler's musical but fairly hard, transistory sound.

Scott McGowan seems to share my belief that high-end audio would be better served and more widely received if it focused more of its design energies on the audio newcomer. The notion that high-quality music reproduction and user-friendliness are mutually exclusive was specious even when it first appeared. Today, it's an inexcusable affront. I see no reason why the myriad inventions of our digital era can't make even the highest-quality music playback easier to use and more affordable. Why should I—or my girlfriend—need a breeder's guide and a master's degree in Integrated

## MEASUREMENTS

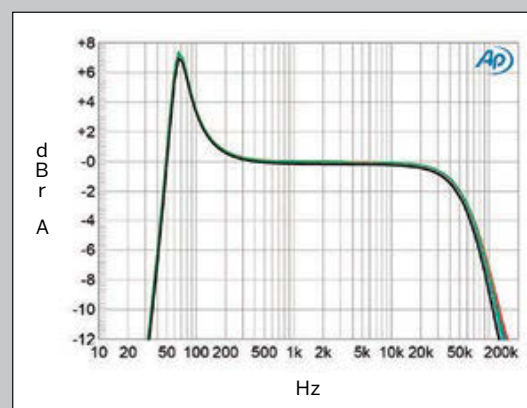
**T**hough no larger than a paperback book, the PS Audio Sprout is a complex product, with USB, S/PDIF, and Bluetooth digital, analog line-level, and analog phono inputs, and speaker outputs, a headphone output, and a line-level output. Testing the Sprout was therefore more complicated than with a typical integrated amplifier. I measured the Sprout using my recalibrated Audio Precision SYS2722 system (see [www.ap.com](http://www.ap.com), and the January 2008 "As We See It" at [www.stereophile.com/content/measurements-maps-precision](http://www.stereophile.com/content/measurements-maps-precision)). As the Sprout is a class-D amplifier—it uses an output module sourced from the Scandinavian Elan/Abletec company—it produces ultrasonic noise that would overload the Audio Precision's input circuitry. I therefore performed most of the tests using, ahead of the analyzer, an Audio Precision AUX-0025 passive low-pass filter (see <http://ap.com/products/accessories/aux0100>), which eliminates noise above 200kHz. (Without the filter and with no signal, there was 200mV of ul-

trasonic noise with a center frequency around 400kHz present at the Sprout's speaker terminals.)

Looking first at the PS Audio Sprout as a conventional integrated amplifier, and driving its line input, it offered a maximum voltage gain of 25.8dB into 8 ohms and preserved absolute polarity (ie, was non-inverting). The input impedance was on the low side, at 8.25k ohms at high and middle frequencies, rising slightly to 9.4k ohms at the bottom of the audioband. The output impedance was extremely low, at 0.03–0.05 ohm, including 6' of speaker cable.

As a result, the variation in response with our standard simulated loudspeaker (fig.1, gray trace) was negligible, nor was there any change in response as the load dropped from 8 to 2 ohms. However, note the 7.5dB peak centered on 67Hz in this graph. It appears that the Sprout's speaker outputs offer some compensation for the rolled-off low frequencies typical of small, inexpensive speakers, then quickly roll off the low bass to avoid

overload. This equalization would work well with Herb Reichert's KEF and Totem speakers, but should have made his full-range Tekton Enzos sound too ripe. However, it is fair to note that he didn't comment on any such ripeness. Fig.1 was taken with the volume control set to its maximum. Repeating the measurement with it set to 12 o'clock gave a slightly lower bass peak but preserved the extended high-treble response. The curtailed low bass corre-



**Fig.1** PS Audio Sprout, volume control set to maximum, frequency response at 2.83V into: simulated loudspeaker load (gray), 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta), 2 ohms (green) (2dB/vertical div.).





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It looks as if PS Audio has done exactly that with the Sprout. It's easy on the mind and easy on the eyes.

### Description

The Sprout was designed and engineered in Boulder, CO but is manufactured in China. It contains a 50Wpc, class-D amplifier, a moving-magnet phono stage with passive RIAA, an asynchronous USB input with a 24-bit/192kHz Wolfson WM8524 DAC chip, a Bluetooth receiver, and a discrete headphone amplifier. On its front panel are: a 1/4" headphone jack; an analog volume control with stepped attenuator that feels satisfyingly solid; and a simple selector to choose among its four inputs: Vinyl (its actual label; *not* Phono), Analog, Digital, and Bluetooth. I could teach a three-footer to operate this machine in less than two minutes.

### Digital

I removed from my system the Simaudio Moon Neo 340i integrated amp that I am currently reviewing: \$4600 base

## Music played through the Sprout's Digital and Analog inputs consistently had a trace of darkness.

price, plus \$300 for the phono stage, plus \$600 for the 24/192 DAC, total \$5400. I replaced it with the Sprout: \$799 *including* phono stage and 24/192 DAC. Instantly, I felt upset and discouraged. The Sprout sounded slow, recessed, kind of gobbledygookish. That muddled sound disappeared in about 10 minutes. Without thinking, I found myself enjoying Smokey & Miho's eponymous EP, picked up at a concert in 2002 (CD, Afro Sambas 001). On this utterly charming recording, ex-Cibo Matto lead singer Miho Hatori and ex-Blasters singer-guitarist Smokey Hormel perform what can only be described as Getz and the Gilbertos, all high on postmodernism and MDMA. Think smart and seductively dreamy. Think "Girl from Ipanema" drained of most of its stylized *Playboy*-era sexuality and refilled with a kind of heady, disenchanted eroticism. The un-broken-in Sprout sounded a bit more smoky and soft than it should have, but with this disc, it also showed a remarkable playfulness that I couldn't remember

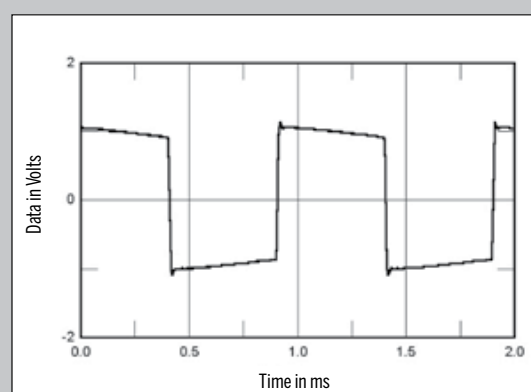
### measurements, continued

lates with the sloped tops and bottoms of the waveform with a 1kHz square-wave (fig.2), and a slight overshoot is visible on the leading edges. However, looking at a 10kHz squarewave (not shown) reveals that this overshoot is not associated with any ringing.

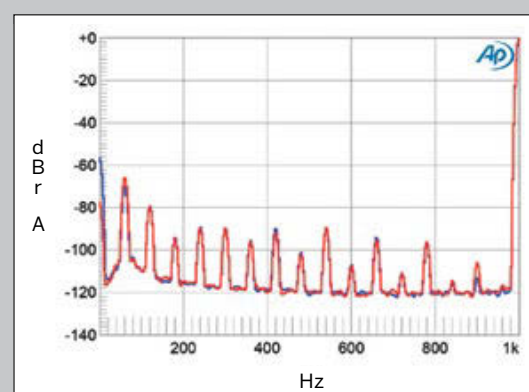
Channel separation was good rather than great, at 65dB in both directions at 1kHz, this decreasing to 40dB at 20kHz. With the Audio Precision low-pass filter in circuit, the Sprout's wide-band, unweighted signal/noise ratio was modest, at 57.3dB left and 55.2dB right, though restricting the measurement bandwidth to the audioband respectively improved these ratios to 64.9 and 61.4dB; A-weighting the measurement gave further improvement, to 80 and 82dB. Spectral analysis of the amplifier's low-frequency noise floor while it reproduced a 1kHz signal at 1W into 8 ohms (fig.3) revealed that there was a regular series of power-supply-related spurious in the Sprout's output, with the 60Hz component higher in the right channel than the left. But these spurious are still sufficiently low not to be heard as hum.

The Sprout is specified as having maximum power outputs of 33W into 8 ohms (15.1dBW) and 50W into 4 ohms (14.0dBW). With clipping defined as the power when the THD+noise in the amplifier's output reaches

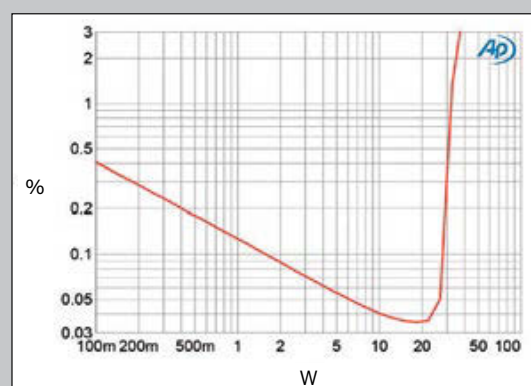
1%, the Sprout with both channels driven clipped at 32Wpc into 8 ohms (15.05dBW, fig.4) and 57Wpc into 4 ohms (14.55dBW, fig.5). The downward slope of the traces in each of these graphs indicates that the Sprout's distortion actually lies beneath the noise up to 20W or so, and is very low.



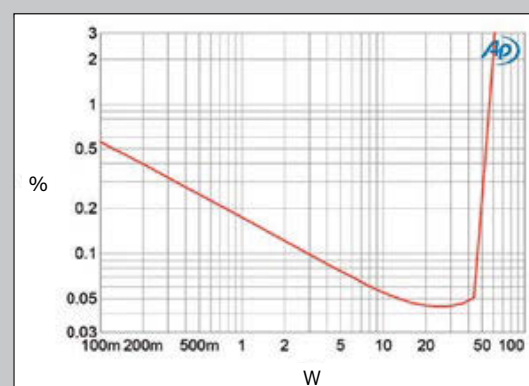
**Fig.2** PS Audio Sprout, small-signal, 1kHz squarewave into 8 ohms.



**Fig.3** PS Audio Sprout, spectrum of 1kHz sine wave, DC-1kHz, at 1W into 8 ohms (linear frequency scale).



**Fig.4** PS Audio Sprout, distortion (%) vs 1kHz continuous output power into 8 ohms.



**Fig.5** PS Audio Sprout, distortion (%) vs 1kHz continuous output power into 4 ohms.





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experiencing with any but the best audio gear. I questioned myself. Was I really experiencing *playfulness*? I sat up and listened more intently. Yes, indeed, I was.

This playfulness caught me off guard. I can't describe it in terms of bass, midrange, tone color, or imaging, but the effect was unmistakable. At this point, the-unbroken-in Sprout was still kind of stygian, but it was playing this intoxicating CD in such a fun way that I relaxed and let myself get sucked in. I stopped thinking like a reviewer, put on Vol.2, *Social Music*, of Harry Smith's *Anthology of American Folk Music* (6 CDs, Folkways FP 252), and lay down on the couch to bask in some mournful entreaties by Uncle Bunt Stephens and Rev. J.M. Gates.

As I listened to this fabled and highly influential album, the Sprout was puttin' me in a wonderfully righteous mood. The soulful, "apostolic" aspect of these tunes was coming right through. Via the Sprout, music had an unmistakably



**The Sprout's rendition of Bluetooth felt richer, more detailed, less hollow and vapid than any Bluetooth sound I've tried so far.**

bouncy directness that caught me off-guard and disabled my audio-critic faculties. I welcomed this: I think *user-friendly* should mean more than "it looks nice," "fits the décor," and "is basically plug-and-play." *User-friendly* must also mean that the amplifier likes my speakers and all the different types of music I enjoy. The PS Audio Sprout and its Wolfson DAC chip were doing fine jobs of both.

### Vinyl

Music played through the Sprout's Digital and Analog inputs consistently had a trace of darkness—not grayness or lack of color, but a slight, shadowy, *yin* effect somewhat like peering through the viewfinder of a film camera with the aperture stopped down. This happened pretty much equally with every speaker I tried. I found it enticing—it balanced the

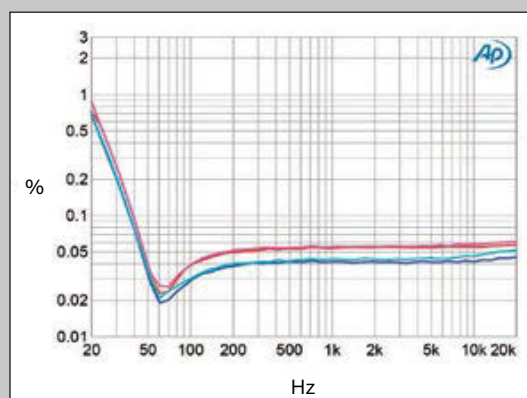
### measurements, continued

THD doesn't change with frequency other than in the very low bass, where the rise is actually associated with the response rolloff. At 1kHz, the distortion appears to be predominantly second harmonic (fig.7), though I had to average 64 captures to bring the distortion waveform out of the noise that would otherwise obscure it. I performed spectral analysis of the amplifier's output with a 50Hz tone into 4 ohms (fig.8) at a lower power than usual, because the Sprout's protection circuit operated at higher continuous levels into this impedance. But again the second harmonic is the highest in level, though actually lower in level than the 120Hz supply-related tone. Tested for intermodulation distortion with a 1kHz-spaced pair of high-frequency tones (fig.9), the Sprout produced a 1kHz difference tone at an acceptably low -63dB (0.07%), though the higher-order products at 18 and 21kHz were 12dB higher in level.

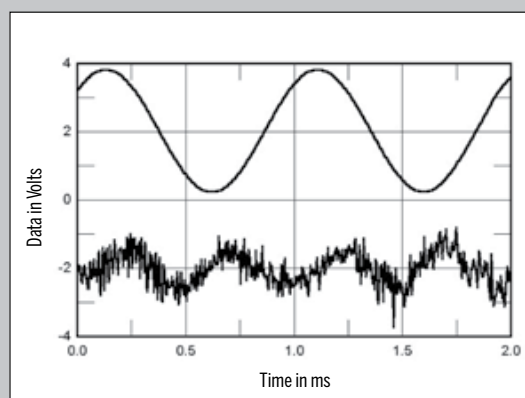
The headphone output (which mutes the speaker outputs), again tested with a line-level input signal, offered a maximum gain of 12.4dB and, again, was non-inverting, as was the output at the line output. (This output offered a maximum gain of 6.4dB.) The headphone output offered a very low source impedance of less than 1 ohm, while the line output jack offered 235 ohms. (Both values applied at all audio frequencies.) These outputs, taken ahead

of the main amplifier's class-D stage, behaved differently from the speaker outputs in the high treble and bass. Fig.10 shows the frequency response at the headphone output with the volume control set to its maximum (blue and red traces) and to 12 o'clock (cyan, magenta). The response rolls off above

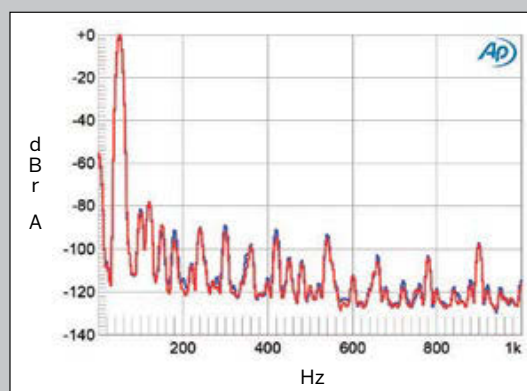
the audioband, and has no boost in the midbass at the lower control setting, and only a hint of boost at the maximum setting. However, the low bass is still rolled off below 70Hz, which is perhaps why HR found the Sprout to sound dry and lean with headphones compared with his reference. Harmonic



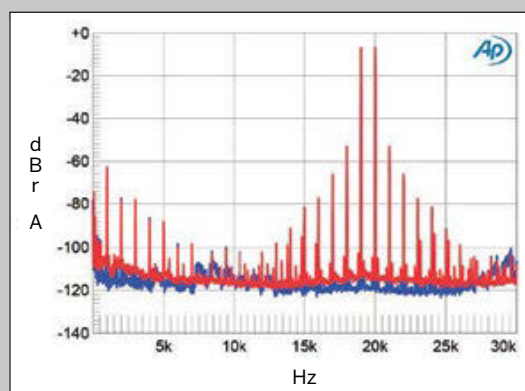
**Fig.6** PS Audio Sprout, THD+N (%) vs frequency at 3V into: 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta).



**Fig.7** PS Audio Sprout, 1kHz waveform at 7W into 8 ohms, 0.02% THD+N (top); distortion and noise waveform with fundamental notched out (bottom, not to scale).



**Fig.8** PS Audio Sprout, spectrum of 50Hz sine wave, DC-1kHz, at 10W into 8 ohms (linear frequency scale).



**Fig.9** PS Audio Sprout, HF intermodulation spectrum, DC-30kHz, 19+20kHz at 10W peak into 4 ohms (linear frequency scale).





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Sprout's playfulness with a grace note of seriousness. It wasn't heavy, just a partially obscuring dimness. I was curious to hear if this characteristic would remain when I played LPs via the Sprout's phono stage.

Having been an orphan *and* a starving artist, I've always had a soft spot for that 18th-century Venetian who composed music for abandoned children at the Conservatorio dell'Ospedale della Pietà and died in poverty: Sr. Antonio Vivaldi. I especially love Vivaldi's compositions when performed by the chamber orchestra I Musici di Roma. I used Soundsmith's Carmen moving-iron cartridge (\$799) attached to the Pioneer PLX-1000 turntable (\$799), connected to the Sprout (\$799) via Auditorium 23 interconnects (\$799/pair), to play Vivaldi's Flute Concerto in g, Op.10 No.2/RV 439, "La Notte" (1960 LP, Philips Hi-Fi Stereo 835005 AY).

This high-quality source equipment plus the spectacular



**For me, the best audio gear—of any price—promotes an immersive, time-melting sense of flow.**

LP showed me precisely what the hymnal-sized Sprout was capable of. Suddenly, its complementary *yang* side appeared. The space surrounding Gastone Tassinari's flute seemed properly lit and correctly scaled. Tone color was spot on. At this point, the Sprout was well broken in, and "La Notte" (The Night) was showing that its playfulness had evolved into something more akin to dancing or frolicking.

I keep alluding to this "bouncy young'uns" feeling because I kept noticing it, and because observing without feeling is not how I roll. For me, the best audio gear—of any price—promotes an *immersive*, time-melting sense of flow. How an audio component accomplishes the dynamics of musical flux and forward momentum is often its most

#### measurements, continued

distortion from the headphone output was very low (fig.11), as was intermodulation distortion (not shown).

I measured the Sprout's phono-stage performance at the headphone output, so it came as no surprise to find that the response with RIAA correction and the volume control set to its maximum was very similar to the line input response (fig.12). The ultrasonic rolloff occurs earlier, however, and is -1.5dB at 20kHz. But note the accuracy of the RIAA equalization and the very close matching between the two channels. The phono stage was again non-inverting, and the maximum gain for phono sources was 53.3dB at the headphone output and 66.7dB at the speaker outputs, these appropriate for moving-magnet cartridges. The input impedance was also compatible with MM cartridges, at 42k ohms at 2Hz, 45k ohms at 1kHz, and 37.5k ohms at 20kHz.

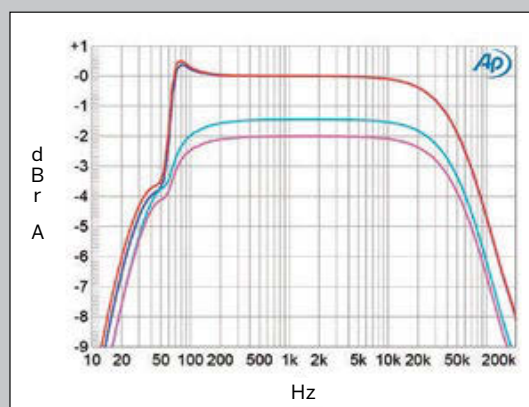
The low-frequency phono-overload margin was excellent, at 20dB at 20Hz (ref. 1kHz at 5mV), though this will be associated with the rolled-off bass. The margin dropped to an adequate 11.4dB at 1kHz and 12.6dB at 20kHz. Distortion with a 1kHz tone at 5mV was low, with the second harmonic the highest in level at just -86dB (0.006%).

Finally, I examined the performance of the Sprout's D/A converter with both USB and S/PDIF data. (I didn't test it with Bluetooth data, as its behavior will be dominated by the lossy codec used.) With the volume control set to

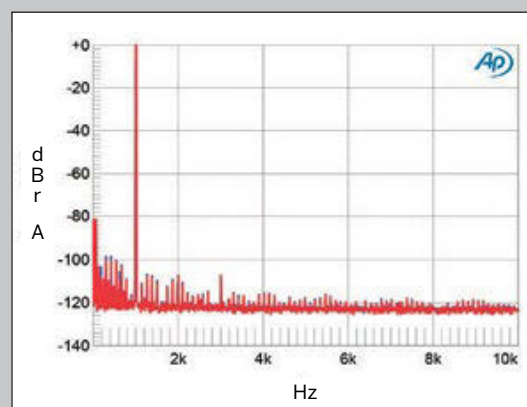
its maximum, a -12dBFS signal at 1kHz gave rise to 10.03V at the speaker outputs, 2.14V at the headphone outputs. A full-scale digital signal would therefore clip both outputs with the volume control at its maximum; fortunately, the control will not be used at its maximum. Apple's USB Prober utility

identified the Sprout as "XMOS USB 2.0 Audio Out," indicating that the USB receiver uses the popular XMOS device and that it operated in the optimal isochronous asynchronous mode.

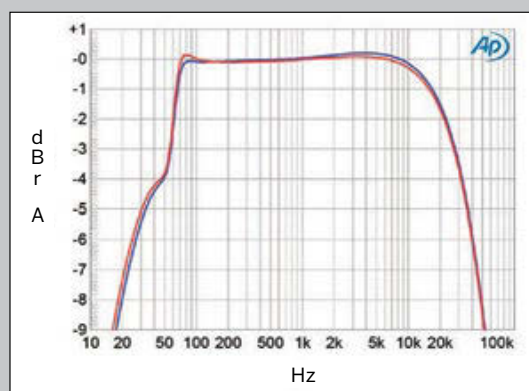
The D/A section preserved absolute polarity, and its impulse response with 44.1kHz data (fig.13) indicates that the



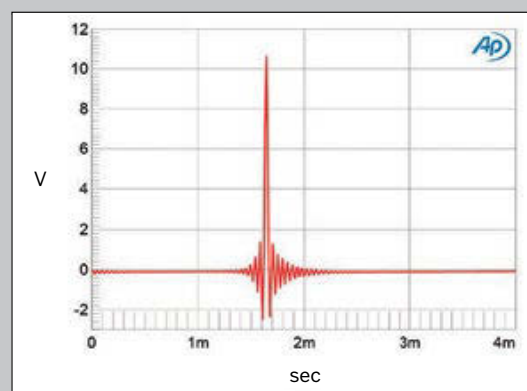
**Fig.10** PS Audio Sprout, headphone output, frequency response at 1V into 100k ohms with volume control set to maximum (left channel blue, right red) and at 12 o'clock (left cyan, right magenta, offset by 2dB) (2dB/vertical div.).



**Fig.11** PS Audio Sprout, headphone output, spectrum of 1kHz sinewave, DC-10kHz, at 2V into 300 ohms (linear frequency scale).



**Fig.12** PS Audio Sprout, headphone output, phono input response with RIAA correction (left channel blue, right red) (1dB/vertical div.).



**Fig.13** PS Audio Sprout, headphone output, impulse response at 44.1kHz (4ms time window).

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defining characteristic. This appeared to be the case with the Sprout. With the Vivaldi LP, the Sprout demonstrated an ability to engage my attention and keep it locked on the space, character, and artistry of the music being played.

“Swing low . . . sweet Cadillac-a-ac, comin’ fo’ to carry me home . . .” Bongos! Bongos! Cuban-style membranophones never fail to draw my attention to recorded tone character—you know, the sounds of human finger skin smacking dried animal skin? I love those sounds. With “Swing Low, Sweet Cadillac,” from Dizzy Gillespie and Charlie Parker’s *Diz ’N’ Bird in Concert* (LP, Roost LP 2234), the Sprout made the bongos sound tangibly present, realistically sized, and completely Afro-Cuban. Voices and room sounds were vivid and open. The bass was a little soft, but big and richly

**The Sprout seems best suited to my favorite categories of listener: garden-variety music lovers and newly minted record collectors.**

## ASSOCIATED EQUIPMENT

**Analog Sources** Pioneer PLX-1000, Thorens TD-124, VPI Traveler turntables; SME 3009 II tonearm; Grado Mono, Ortofon 2M Black, Soundsmith Carmen, Zu Audio DL-103 cartridges.

**Digital Sources** Puresound A-8000 CD player; Halide HD, Line Magnetic LM 502 CA DACs.

**Preamplification** Blue Horizon BN:09-11-009, Schiit Mani, Soundsmith MMP3 phono stages.

**Integrated Amplifiers** Line Magnetic LM518 IA, Rogue Audio Sphinx, Simaudio Moon Neo 340i.

**Loudspeakers** KEF LS50, Tekton Enzo XL, Totem Model 1 Signature.

**Headphone amplifier** Schiit Asgard.

**Headphones** Audio-Technica ATH-M50x.

**Cables** Interconnect: AudioQuest Big Sur & Cinnamon & Golden Gate, Kimber Kable Silver Streak. Speaker: Auditorium 23, Kimber Kable 8TC.

**Accessories** Sound Anchor stands.—Herb Reichert

## measurements, continued

digital reconstruction filter is a conventional FIR type. Wideband spectral analysis at the headphone output with 44.1kHz-sampled white noise (fig.14, red and magenta traces) reveals that the filter has a fairly slow initial rolloff, which means that the ultrasonic image of a full-scale 19.1kHz tone at 25kHz is suppressed by 60dB rather than being buried in the stop-band noise floor. Both the USB and S/PDIF inputs locked to data of all sample rates from 44.1 to 192kHz. A more conventional look at the baseband frequency responses, with data sampled at 44.1, 96, and 192kHz (fig.15), shows that the ultrasonic rolloff is identical with all three rates, other than a sharp drop just below each Nyquist frequency (half the sample rate) for 44.1 and 96kHz data.

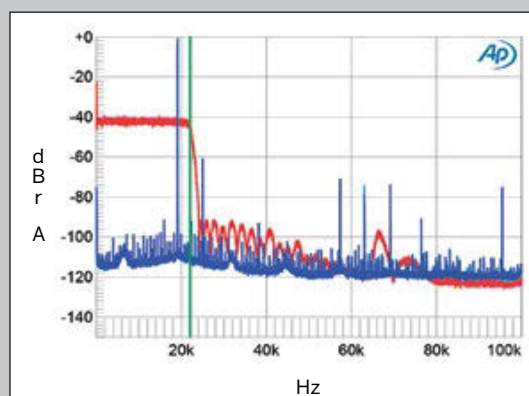
The drop in the noise floor that occurred when feeding the digital inputs first with 16-and then 24-bit data, both representing a dithered 1kHz tone at -90dBFS (fig.16), suggested that the Sprout offers about 17 bits of digital resolution for both USB and S/PDIF data. With an undithered tone at exactly -90.31dBFS, the Sprout successfully resolved the three DC voltage levels described by the digital data (not shown). Feeding the Sprout’s digital inputs with the Miller-Dunn J-Test signal gave the same result (fig.17): too high a noise floor, which completely obscures the odd-order harmonics of the low-frequency, LSB-level square-

wave; and a regular series of sidebands of unknown origin, spaced at  $\pm 800$ ,  $\pm 1600$ ,  $\pm 2400$ Hz, etc.

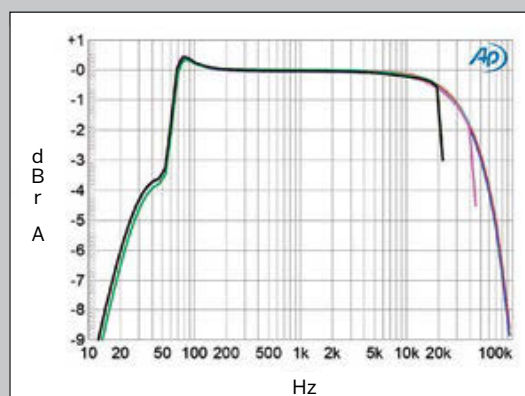
Though the Sprout didn’t excel in any area of measured performance, it

compensates for that with its affordable price and considerable flexibility. It really is a “one-stop shop” for putting together an inexpensive system.

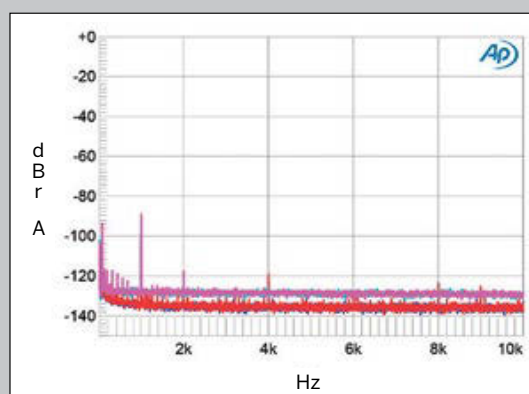
—John Atkinson



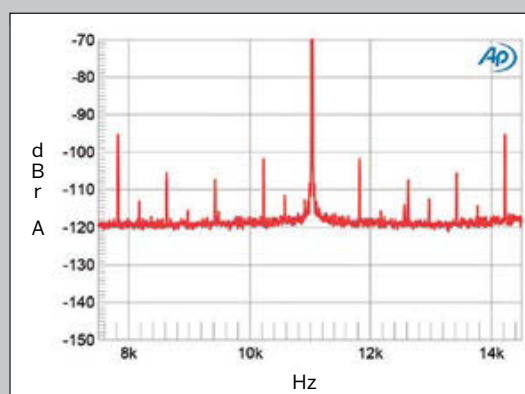
**Fig.14** PS Audio Sprout, headphone output, wideband spectrum of white noise at -4dBFS (left channel red, right magenta) and 19.1kHz tone at 0dBFS (left blue, right cyan), with data sampled at 44.1kHz (20dB/vertical div.).



**Fig.15** PS Audio Sprout, headphone output, frequency response at -12dBFS into 100k ohms with data sampled at: 44.1kHz (left channel green, right gray), 96kHz (left cyan, right magenta), 192kHz (left blue, right red) (1dB/vertical div.).



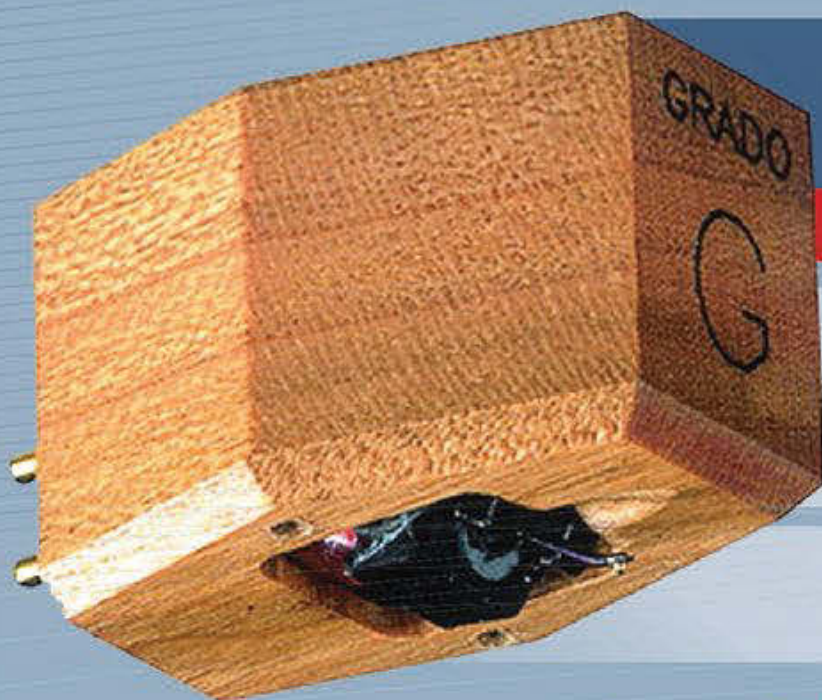
**Fig.16** PS Audio Sprout, headphone output, spectrum with noise and spurs of dithered 1kHz tone at -90dBFS with: 16-bit data (left channel cyan, right magenta), 24-bit data (left blue, right red) (20dB/vertical div.).



**Fig.17** PS Audio Sprout, headphone output, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: 16-bit data from MacBook Pro via USB (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range,  $\pm 3.5$ kHz.



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toned. The midrange was colorful and enjoyably textured. The highs felt slightly rolled off, but never objectionably so. A touch of darkness fluttered near the frequency extremes. “Old Cadillacs never die. The finance company just comes and takes them away.”

### Cable Issues

After playing a bunch of jazz and classical LPs using the oh-so-rich— and natural-sounding Auditorium 23 cables, I began to wonder if the shadowy sound I’d heard through the Sprout’s digital and analog inputs had been tainted by my less-than-high-pedigree (RadioShack) USB and RCA 3.5mm miniplug interconnects. I swapped in some of AudioQuest’s new Golden Gate interconnects (\$69/pair) between my CD player and the Sprout and listened to a couple more Harry Smith CDs.

Guess what. No more smoke and *f*-stop shadow! In fact, with the AQ wire, the Sprout’s Analog input was now more *yang* than its Vinyl input.

Continuing my investigations, I inserted AQ’s Cinnamon USB link (\$79) in the Sprout’s USB digital input, and AQ’s Big Sur interconnects (\$109/pair) between the VPI Traveler turntable (\$1500) with Ortofon 2M Black cartridge (\$799) and the Sprout’s Vinyl input—whereupon all of the Sprout’s inputs began to sing in the same voice of April–May sunshine. The digital inputs’ detail and soundstage accuracy were dramatically enhanced. Most impressive was the upgrade in the Sprout’s already exceptional liveliness.

This newly enhanced liveliness had limitations. Playing a reissue of Mendelssohn’s *A Midsummer Night’s Dream*, with Peter Maag conducting the London Symphony Orchestra (CD, Decca/Classic Records CSCD 6001), I began to notice that the Sprout was running out of torque more quickly than I thought it should. *This little devil has 50W*, I kept thinking; *that should be more than enough for any of my speakers*. But it wasn’t. With both big classical and demanding rock, I began to notice climaxes fading as they approached their peaks. I contacted PSA’s marketing maven Bill Leebens

and asked, “Is this amplifier really 50W?” He responded by sending me the Sprout’s official specs: 50W into 4 ohms, 33W into 8 ohms.

Nevertheless, after the change to AudioQuest cables, I felt that the Sprout was finally performing as the McGowans expected it to, and as I’d hoped it would. Recording after recording, the Sprout now showed its cheerful and highly musical *force de vie!*

### Bluetooth

According to Scott McGowan, the Sprout’s Bluetooth<sup>1</sup> circuit “draws the S/PDIF signal from the Bluetooth dev board into [the] DAC.” He claims that this method “[i]mproves the sound quality to levels which qualify for high-end status.”<sup>2</sup>

For me, evaluating Bluetooth sound quality is one of the most vexing aspects of wearing my reviewer’s hat. I use this wireless convenience only when evaluating audio products equipped with Bluetooth. This is why my listening room contains two separate systems: my main reference system with floorstanding speakers, which I use for reviewing and late-night dreaming; and a second, usually quite-good desktop system featuring wall-mounted Rogers LS3/5A or Totem Model One Signature speakers, a Schiit Asgard headphone amp, a Line Magnetics LM 502 CA DAC (or the DAC du jour), and whatever amplification I’ve just removed from the main system. For this second system I use a Mac mini as the source and listen primarily to Tidal streaming, my iTunes library, and high-resolution downloads from HDtracks. Many days, this is the *only* system I listen to.

For this review, I routinely switched between the Bluetoothed Sprout in the floorstanding system and my quality desktop rig, and you know what? I think Scott McGowan may be right. To my ears, the Sprout’s rendition

1 See my February 2014 review of the Arcam rBlink—[www.stereophile.com/content/arcam-rblink-bluetooth-da-processor](http://www.stereophile.com/content/arcam-rblink-bluetooth-da-processor)—for a discussion of Bluetooth technology.—**John Atkinson**

2 From an interview with John H. Darko in *Digital Audio Review*, June 30, 2014: [www.digitalaudioreview.net/2014/06/ps-audio-sprout-a-qa-with-scott-mcgowan/](http://www.digitalaudioreview.net/2014/06/ps-audio-sprout-a-qa-with-scott-mcgowan/).



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of Bluetooth *felt* richer, more detailed, less hollow and vapid than any Bluetooth sound I've tried so far. It also *seemed* to overload less on uncompressed files. The many Eno and Aphex Twin tracks I played via Bluetooth were totally enjoyable.

### Headphones

At the beginning of this review process, and again at the end, I used the Sprout in my desktop system, exclusively for headphone listening. At first I thought the Sprout's headphone output sounded more detailed than its speaker output. Listening now again, as I type this, it still sounds detailed but also seems a bit wiry and bass shy, with a tipped-up tonal balance that eliminates almost entirely that sunny playfulness I heard through speakers. Compared to my Schiit Asgard headphone amp, the Sprout sounds dry and lean. That smart, Asian-Brazilian sexiness has mostly vanished from *Smokey & Miho*.

### Conclusions

PS Audio's Sprout does not play tunes as if engineered to perform such audiophile tricks as ersatz detail, bass wallop, or exaggerated soundstaging. The Sprout's strengths can all be measured in more quotidian and human terms. The Sprout seems best suited to my favorite categories of listener: garden-variety music lovers and newly minted record collectors. What the remarkable little Sprout did was play all types of music in a fashion that I found 110% enjoyable. Well... maybe only 97%. But for \$799, even 97% is amazing.

The Sprout falls partway between the 125Wpc Peachtree

Audio nova125 (\$1499; *Stereophile's* "Recommended Components," Class B), which plays with considerably more detail, sparkle, and punch—and the 30Wpc NAD D 3020 (\$499; Class C), which was summarized in the October 2013 edition of "Recommended Components" thusly: "The sound from every input was warm, present, and naturally detailed; even low-quality MP3s streamed wirelessly via Bluetooth were engaging, said [Stephen Mejias]." Which is pretty close to how I would describe the Sprout's sound—*except* that I think it added a few extra intangibles: playfulness, boogie, and what I can call only "the Paul McGowan Factor." Yes, I know the Sprout is Scott's baby, but the senior McGowan has been around more blocks of high-end audio than this humble reporter. Paul must have auditioned the Sprout before it hit the street. If he hadn't thought the Sprout's musical virtues were obvious, or that the marketplace wouldn't easily recognize its exceptional value, I'm certain he would have encouraged his son to go back to the bench and make it better.

I have always felt that real art lays in hiding—in the transitions between contrasts like dark and light, near and far, beginning and end—and with the Sprout, I always enjoyed the way I felt when a song ended and the next one began. I took pleasure in how I would go from smiling satisfaction to eager anticipation. This important, *user-friendly* intangible eludes traditional audiophile analysis. Most of all, the Sprout specialized in the *beguiling* reproduction of every kind of music I sent through its four inputs. Recommended to style-conscious, value-seeking human beings of all ages, genders, and *heights*. You go, little Sprout! ■



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John Bamford, HiFi News, 2014

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ART DUDLEY

# Luxman Classic CL-38u

## PREAMPLIFIER



If you look at it from a distance and squint a little, Luxman's Classic CL-38u preamplifier (\$4200) could almost be mistaken for that most classic of all classic hi-fi products, the Marantz Model 7C control center. The aluminum front panels of both models have, at their centers, a row of four distinctive toggle switches, flanked on each side by four control knobs. Even more noticeable are the stylish wood enclosures—standard on the Luxman, optional on the Marantz—which make both preamps appear ready for duty at the Playboy Mansion, *ca* 1963, or perhaps an appearance in a *Life* photo essay titled “At Home with Steve McQueen.”

That two *heritage* products share a design aesthetic comes as no surprise, especially considering that their manufacturers began making upscale consumer-audio products at more or less the same time, in the early 1950s. But there the similarity ends: The CL-38u actually is not a heritage product, not a vintage-reissue product, not something cobbled together to capitalize on NOSTALGIA. And while a critical examination of the Marantz lineage is a chore for which I have no enthusiasm, the fact is: The Luxman Corporation, which this year celebrates its 90th birthday, has never ceased making products that are, in self and in sound, obviously descended from their famous forebears.

I think that's important—not unlike the Luxman Classic CL-38u itself.

### Description

Inside the Classic CL-38u's texture-painted steel case, itself covered by a good-looking MDF sleeve with a stained-ash veneer, I found the same mix of old and new technologies that distinguished Luxman's SQ-38u integrated amplifier, which I reviewed for *Stereophile's* November 2011 issue.<sup>1</sup> For moving-magnet phono gain, the CL-38u uses three ECC83 dual-triode tubes in a shunt-regulated, push-pull (SRPP) configuration chosen to minimize the output impedance of each stage. Five ECC82 dual-triode tubes, also in SRPP configuration, provide line-level gain and the extra amplification required for the Luxman's tone controls: Indeed, the CL-38u offers the ability not only to tailor a system's response with bass and treble boosts or cuts of up to 8dB, but also to tailor such tailoring with switchable hinge frequencies for both filters. The user can select bass boost/rolloff frequencies of 600, 300, or 150Hz, and, in the treble, 1.5, 3, or 6kHz.

Alongside those tubes are three full-wave rectifiers—the largest fitted with its own custom heatsink—plus three solid-state voltage regulators and over a dozen discrete transistors. The last are not in the signal path; rather, they appear to facilitate, in tandem with an equal number of relays, soft switching for the above-mentioned tone controls

<sup>1</sup> See [www.stereophile.com/content/luxman-sq-38u-integrated-amplifier](http://www.stereophile.com/content/luxman-sq-38u-integrated-amplifier).

## SPECIFICATIONS

**Description** Two-channel tubed preamplifier. Line inputs: 4 plus tape loop. Phono inputs: 1 (switchable for MM, high-output MC, or low-output MC). Frequency responses: line, 10Hz–70kHz, +0/–3.0dB; phono, 20Hz–20kHz, +0/–0.5dB. Input sensitivities: line, 190mV;

MM phono, 2.0mV; MC-high phono, 0.3mV; MC-low phono, 0.08mV. Signal/noise (IHF, A-weighted, input shorted): line, >100dB; MM phono, >68dB; MC-high phono, >63dB; MC-low phono, >60dB. Total harmonic distortion: 0.06% (20Hz–20kHz, 1V).

**Dimensions** 15.6" (400mm) W by 6.6" (170mm) H by 12" (307mm) D. Weight: 29.7 lbs (13.5kg).

**Serial number of unit reviewed** G30300001.

**Price** \$4200. Approximate number of dealers: 30.

**Manufacturer** Luxman Corporation, 1-3-1 Shinyoko-

hama Kouhoku Ku, Yokohama, Japan. Web: [www.luxman.co.jp](http://www.luxman.co.jp). US distributor: On a Higher Note, PO Box 698, San Juan Capistrano, CA 92765. Tel: (949) 488-3004. Fax: (949) 612-0201. Web: [www.onahighernote.com](http://www.onahighernote.com).

# A Universal Value Test

**A cup of coffee doesn't cost \$4 at Starbucks®.**

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Recently, there's been a lot of discussion on the Internet regarding our most expensive Ethernet cable. It seems to have started when The Register, a London-based website, published an article titled "\$10,000 Ethernet Cable Promises Bonkers MP3 Audio Experience," playfully mocking our pure-silver Diamond RJ/E Ethernet cable. Never mind that The Register made no mention of the cable's length (12m), failed to consider value-added taxes when calculating the exchange rate—a 12m Diamond Ethernet cable actually costs £6899 or \$7995 US—and wrongly referred to our cable as Cat6 when, in fact, all of our prepared RJ/E cables are built on a Cat7 foundation. The Register had made its point. According to them, this was a simple case of **"audiophile nonsense turned up to 11."**

The article went viral, attracting hundreds of comments, causing a stir on Facebook and Twitter, finding its way onto forums, and soaring through the blogosphere. Versions of the article showed up in nearly every language on Earth—and soon prompted other, more considered responses. AudioStream.com's Michael Lavorgna posted the **finest commentary on this brouhaha** that I've seen to date ([www.audiostream.com/content/ethernet-madness](http://www.audiostream.com/content/ethernet-madness)), and the BBC's *Radio 5 Live* had me on air for an interview. Thanks, desperate-for-news bloggers, for getting me such rarified media attention!

While a Tall (12oz) **coffee costs \$1.75 at Starbucks**, one can certainly spend \$4 or more for a customized latte. While superior-sounding **AudioQuest Ethernet cables begin at \$25**, one can spend \$7,995 for a 12-meter long AudioQuest Diamond RJ/E cable.

Both the \$4 "cup of coffee," and the \$7,995 cable are bargains when considered in the right context. Although a customized drink at Starbucks is not unreasonable

for many people, AudioQuest would be the first to acknowledge that not many people have systems for which a \$7,995 Ethernet cable is **"the least expensive way to make the most difference"**—the test by which AudioQuest measures all of our products. If the cable fails that test, it probably shouldn't be purchased.

As I mentioned during the BBC interview, the biggest Ethernet difference AQ is fond of demonstrating is **between wireless and any cheap generic Cat5** Ethernet cable. Of course, we continue on to let people hear that while the steps from Pearl to Forest and then to Cinnamon (still only \$75 for 0.75m), etc., are not quite as dramatic, each model makes a clearly audible improvement—in some contexts, too expensive to justify buying, and, in other contexts, practically free considering the sonic improvement provided.

By "context," I don't mean that superior equipment is required to hear and appreciate the difference; the improvement can be heard on anything. I mean the cost of the system. Can the cable in question pass the test I referred to above: Is the cable the least expensive way to make the biggest improvement to the sound?

Please use AQ's Universal Value Test yourself, and please consider doing it with AudioQuest cables, whether Ethernet, USB, HDMI, audio interconnect, optical, speaker wire, Thunderbolt™, etc.

**Thanks for giving us a listen!**

Sincerely,



William E. Low



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and the switches for various other functions, including: tone-control defeat, mono, tape monitor, mute, rumble filter (providing 6dB/octave cutoff for frequencies below 30Hz)—and, of course, source selection for four pairs of line inputs and one pair of phono inputs, all single-ended (RCA jacks).

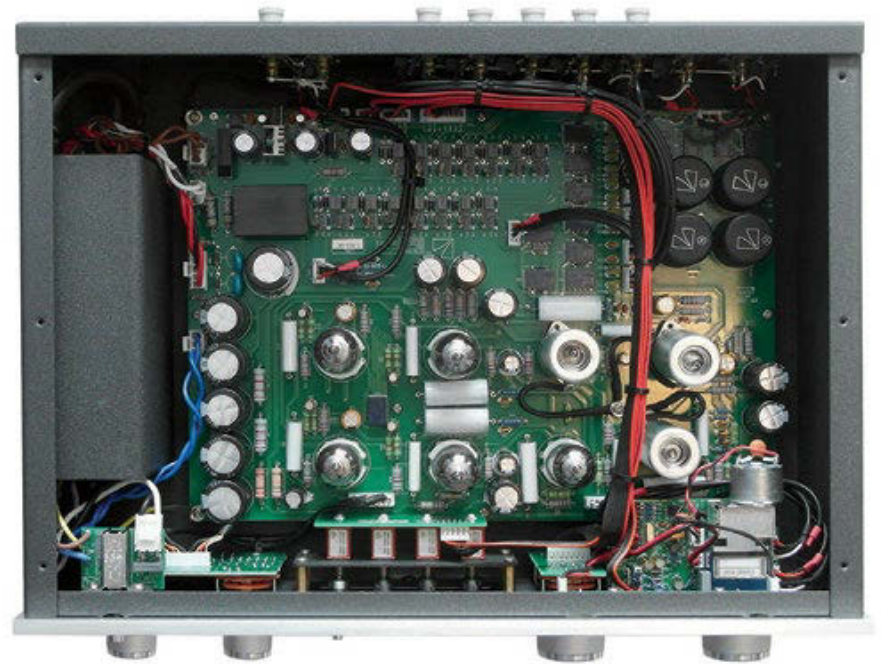
The CL-38u's phono preamp offers more flexibility than its single pair of inputs would seem to imply. A front-panel rotary switch allows the user to select gain and input-impedance settings for MM, high-output moving-coil, and low-output MC cartridges, the latter two with the help of separate pairs of internal step-up transformers. Other Luxman luxuries include two parallel pairs of output jacks, the tape loop, and a remote handset whose functions are limited to volume control and muting.

The build quality of my review sample was very good. Most of the circuitry is found on a single large board; the mains transformer is secreted away in its own shielded case, finished in the same black textured paint as the rest of the case. Each of the three ECC83 tubes gets its own spring-loaded, anti-microphonic can; and the four step-up transformers, made in-house, are encased in shields also done up in black textured paint. (What, was there a sale on the stuff?) Layouts are sensible, wiring is neat, solder joints first-class—and I haven't even mentioned the beautiful veneer work on the CL-38u's wooden enclosure.

### Installation and setup

Typical of most audio products from well-established Japanese firms, the Classic CL-38u's packaging is superb: a rugged double carton and a tight-fitting pair of high-quality foam inserts. The preamp itself was covered with a sheet of very nice Japanese paper, and snugged into a drawstring bag made of a distinctive material that seemed a hybrid of fabric

A glance inside the Luxman pre is rewarded by the glad sight of tubes and transformers.



**The CL-38u's phono preamp offers more flexibility than its single pair of inputs would seem to imply.**

and paper.

With its wooden enclosure in place, only the preamp's front and rear panels are left uncovered, although the enclosure's bottom panel has a 6" by 4" opening that corresponds with a similarly sized vent in the CL-38u's metalwork. In use, with the enclosure in place, the Luxman was scarcely warm to the touch. Curiosity led me to try it without its wrap. I had to perch the CL-38u on three Ayre Acoustics Myrtle isolation blocks—the preamp's own feet are attached to the wooden bottom panel—but it neither felt nor sounded any different.

## MEASUREMENTS

I measured the Luxman Classic CL-38u's electrical performance with my Audio Precision SYS2722 system (see [www.ap.com](http://www.ap.com) and the January 2008 "As We See It," <http://tinyurl.com/4ffpve4>).

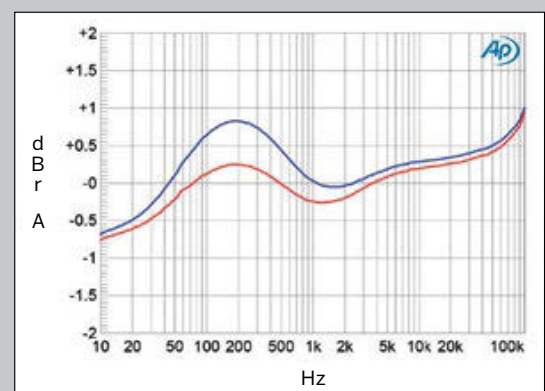
Looking first at the phono stage, I examined the output at the Rec Out jacks, to ensure that I was not including the performance of the line stage in the measured results. The three settings of this input offered voltage gains (into 100k ohms) of 41.2dB (MM), 57.6dB (MC High), and 67.5dB (MC Low). The latter two gains were affected somewhat by the 20 ohm output impedance of the AP generator, but all three are appropriate for the type of phono cartridge used. As Art Dudley suspected, the MM setting preserved absolute polarity (ie, was non-inverting), but the two MC settings did invert polarity. The MM input impedance was suitably high, at

46k ohms at low and middle frequencies, dropping slightly to 40k ohms at 20kHz. MC High varied from 314 ohms at 20kHz and 470 ohms at 20Hz to 905 ohms at 1kHz, while I got anomalous readings for MC Low.

The CL-38u's RIAA error is shown in fig.1. The two channels don't match as closely as I have found with other preamps, but the general trend is the same: small excesses of energy in the midrange and high treble. Despite its use of tubes, the Luxman's phono stage is very quiet. The unweighted, wideband signal/noise ratios, taken with the input shorted and ref. 1kHz at 5mV (MM) or 500μV (MC High and Low), were 66dB (MM), 56.1dB (MC High), and 55.5dB (MC Low), these respectively improving to 79.5, 71, and 72.6dB when A-weighted.

The phono-stage overload margins were simply superb at low and middle frequencies, at 30–37dB, depending

on setting, and were still 20–23dB at 20kHz. Set to MM, the phono stage clipped with a 1kHz signal at 223mV, which is 33dB higher than the standard MM level of 5mV and equivalent to an output voltage of 24.75V! This is a high-dynamic-range circuit that also offered low levels of harmonic distortion. Fed 1kHz at 1mV, the MC High setting produced second-harmonic



**Fig.1** Luxman CL-38u, phono input, response with RIAA correction (left channel blue, right red) (0.5dB/vertical div.).

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The Classic CL-38u didn't appear to invert signal polarity—at least, not through its MM phono input, which is how I used it most of the time—and it exhibited more or less the same amount of gain as my Shindo Masetto, which is itself generously endowed. The Luxman got along with my turntable and step-up transformer at one end, and my Shindo Corton-Charlemagne mono amps at the other, leading me to suspect nothing in the way of impedance mismatches. I experienced no hum or noise of any sort, and the CL-38u's only performance quirk of note proved to be the surprising degree to which its sound changed during its first 15 or 20 minutes after power-up: Used cold, it was a bit quacky, with so-so presence and poor center fill with stereo recordings; 20 minutes later, the Luxman sounded far more luxe, with terrific presence and texture and musical momentum; after an hour, the sound was better still.

To play LPs, I prefer using my MC pickups with a step-up transformer—especially my Hommage T2—rather than going straight into a phono preamp in which active devices supply the necessary extra gain. But since the Luxman uses internal transformers for its two MC settings, I tried my EMT TSD 15 cartridge straight in and was very pleasantly surprised. With the CL-38u switched to its high-output MC setting—appropriate for the 1.05mV EMT—I heard fine timbral color and texture, better-than-average touch and drive, and unusually good channel separation. The most immediately obvious difference between my usual transformer and that in the Luxman was a lack of bass weight in the latter; then again, one could simply turn up the bass knob, I suppose.

Speaking of the Luxman's tone controls: Activating the CL-38u's tone defeat—*ie*, switching the tone controls



Controls, there and here: the Luxman's remote handset (left) and a portion of its front panel.

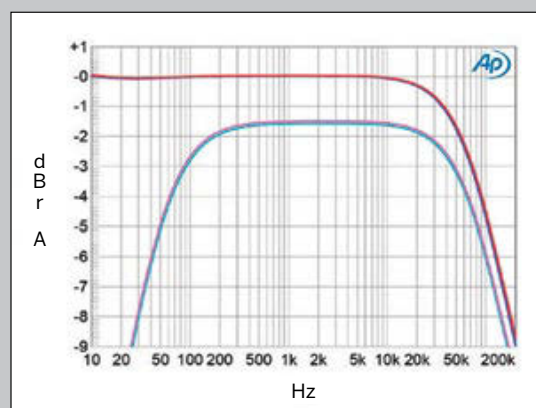
*off*—bypasses the tone controls' extra circuitry, under which condition the Luxman preamp sounded fine. But with tone defeat disabled and the tone controls enabled, the sound was cloudier, less open. The difference wasn't big, and with some recordings the ability to scrape the frost off the treble range far outweighed the diminution in transparency. Incidentally, neither the Luxman's rumble filter nor its balance control nor its mono switch—arguably the CL-38u's three most useful “extras”—imposed any such penalty.

A final installation note: The molded plug of the AC cord supplied with the Classic CL-38u has only two prongs; similarly, although the preamp is fitted with an IEC socket, said socket lacks a third contact—and the corresponding portion of the AC cord is as smooth and undisturbed as a Mexican tetra's eye socket. For those reasons if no others, it would seem that aftermarket AC cords need not apply.

## measurements, continued

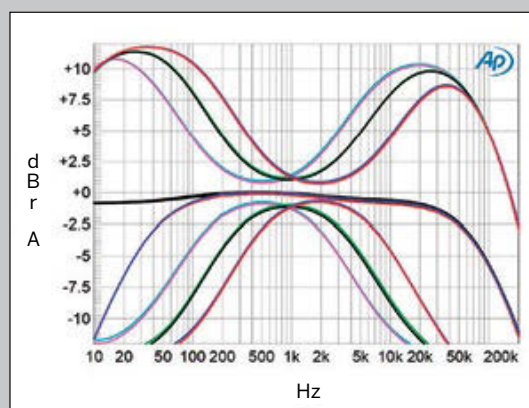
distortion of just -84dB (0.006%). Fed an equal mix of 19 and 20kHz tones at the same equivalent level, the 1kHz intermodulation product lay at -58dB, just above 0.1%, which is good.

Turning to the Luxman's line stage, line-level signals appeared at the Rec Out jacks with zero gain; and it appears that there is no buffer stage for these outputs. At the main outputs,



**Fig.2** Luxman CL-38u, frequency response with volume control set to maximum gain at 1V, into: 100k ohms (left channel blue, right red), 600 ohms (left cyan, right magenta) (1dB/vertical div.).

the line stage offered a maximum gain of 15.6dB and was non-inverting. The input impedance was usefully high, at 43k ohms at 20Hz and 1kHz, dropping inconsequentially to 30k ohms at 20kHz. The output impedance was low, at 120 ohms at high and middle frequencies, but rose to 1500 ohms at the bottom of the audioband. As a result, the bass rolled off prematurely with the



**Fig.3** Luxman CL-38u, frequency response with tone controls set to maximum, center, and minimum positions, and with and without Lo-Cut switched on (left channel blue, right red) (2.5dB/vertical div.).

demanding 600 ohm load (fig.2, cyan and magenta traces). With the more realistic 100k ohm load (fig.1, blue, red), the response was flat to 10Hz and to 20kHz, and the two channels were superbly well matched. This graph was taken with the tone controls defeated and the volume control set to its maximum. Commendably, both the channel matching and measured response didn't change at lower volume-control settings.

AD commented on a change in the sound when he switched from tone controls defeated to tone controls active, but with the treble and bass controls set to their central, detented positions. Not only did I measure a drop in level at 1kHz of 1.7dB with the tone controls engaged, but the treble was shelved down by -1dB at 20kHz (fig.3, middle blue and gray traces). The Lo-Cut switch rolled off the bass by 3dB at 40Hz (fig.3, middle blue trace below 200Hz), while this graph indicates that the treble and bass

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## Listening

Fully warmed up, the Classic CL-38u presented music with natural, realistic warmth and color, and fine bass-to-treble balance. Its perspective was neither recessed nor excessively forward, and its spatial presence tended toward the larger end of the scale.

Touch and impact were very good. In the recording of Strauss's *Metamorphosen* by Neville Marriner and the Academy of St. Martin-in-the-Fields (LP, Argo ZRG 604), pizzicato notes in the double basses, while timbrally rich almost—but not quite—to the point of plummy, were not at all lacking in tactile *snap*. A related characteristic was the CL-38u's sheer speed and clarity of musical timing. Up-tempo jazz and pop benefited from that quality, of course, but so did classical music, as with the well-known recording by Charles Munch and the Boston Symphony Orchestra of Franck's Symphony in d (LP, RCA Living Stereo LSC-2131). Munch's flexible, turn-on-a-dime tempos were explicitly put across by the Luxman, as were the momentum and sheer power of the orchestra in this performance's many accelerandi.

Equally impressive with large-scale music were the Luxman's dramatic expressiveness, and its ability to remain unfazed during the highest and densest peaks. The CL-38u's handling of the many unexpectedly powerful crescendi in *Metamorphosen* was especially notable: The sound remained free of audible strain, even as the music was, emotionally, nearly overwhelming. On the few occasions when I allowed playback levels to get out of hand, the Luxman responded not with harshness but with a bit *too* much texture. For example, with Georg Solti and the London Symphony Orchestra's recording of Mahler's Symphony 2 (2 LPs, Decca/Speakers Corner SET 325/6)—the rare Decca

classical recording that sounds just a little too *hi-fi* to my ears—my recklessness with the volume control yielded a slight excess of grain in the sounds of loudly played brass instruments.

The line between getting the right amount of detail out of a recording and an excess of same is similar to the line between enjoying the outdoors during temperate weather and being eaten alive by mosquitos; the Classic CL-38u was, I'm happy to say, on the correct side of that border. While the Luxman was in my system, I spent more than one evening with the lovely Soria Series album *The Golden Age of English Lute Music*, by guitarist/lutenist Julian Bream (LP, RCA Living Stereo LDS-2560), and was impressed—not to mention entertained, even charmed—by how the Luxman provided just the right percussiveness to each note without sounding mechanical or *hi-fi*. In the Luxman's hands, those attacks were followed by the realistic blooming of individual notes, with very good color and physicality. Additionally, the CL-38u's facility with spatial detail made it easy to hear and appreciate the simple techniques used to record this music, and to hear differences between certain selections in miking technique and miking distances—as between the gorgeous Thomas Morley *Pavan*, and the notably more distantly recorded *Batell Galliard* of John Dowland.

My midlife King Crimson fascination endures, so much so that I sought out and found, for \$20, a UK import LP of the band's fourth album, *Islands* (LP, Island ILPS-9175). Since its arrival, I haven't once filed it away—and it sounded fine through the CL-38u. In "The Letters," the textures of Mel Collins's saxophones and Ian Wallace's brushed drums, the latter heavily compressed in the manner of the day, were portrayed beautifully by the CL-38u. The Luxman was also good at separating from one another the sounds

## measurements, continued

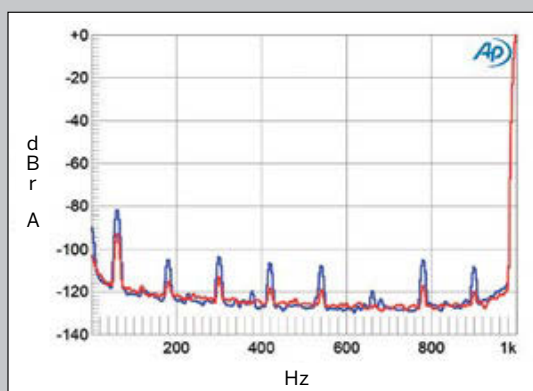
controls apply 10–12dB of boost or cut, which is more than generally thought necessary.

Channel separation was excellent, at >90dB in both directions in the mid-range and bass, though this decreased to 60dB at the top of the audioband. The line stage's wideband, unweighted S/N ratio, ref. 1V output and taken with the inputs shorted but the volume control set to its maximum, was 78dB, this improving to 94dB when the mea-

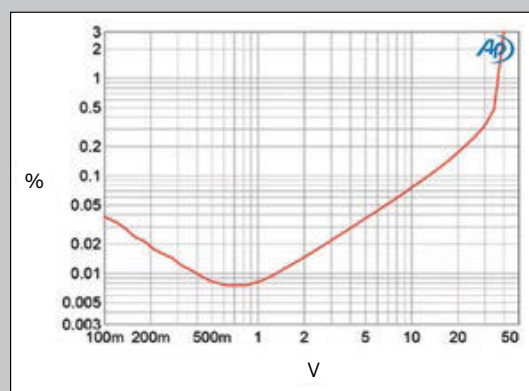
surement bandwidth was restricted to the audioband and to 98dB when A-weighted. Spectral analysis of the Luxman's output while it reproduced a 1kHz tone at 2V into 100k ohms (fig.4) revealed that the primary source of noise was some slight magnetic leakage from the AC transformer of 60Hz and its odd harmonics.

Fig.5 plots the CL-38u's percentage of THD+noise against output voltage at 1kHz into 100k ohms. The down-

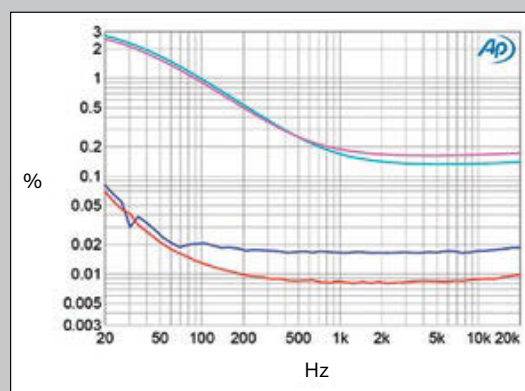
ward slope of the trace below 600mV indicates that the distortion lies below the noise up to this level, and while the THD starts to rise above 1V, it is still very low at all levels at which the Luxman preamp will be used in practice. As I said before, the CL-38u is a high-dynamic-range design—its line stage doesn't actually clip (1% THD+N) until 37V! Though the preamplifier was less happy driving low impedances (fig.6), as long as it is used to drive loads



**Fig.4** Luxman CL-38u, spectrum of 1kHz sine wave, DC–1kHz, at 2V into 100k ohms (left channel blue, right red) (linear frequency scale).



**Fig.5** Luxman CL-38u, distortion (%) vs 1kHz output voltage into 100k ohms.



**Fig.6** Luxman CL-38u, distortion (%) vs frequency at 1V into: 100k ohms (left channel blue, right red), 600 ohms (left cyan, right magenta).

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of superficially similar instruments—as in the title track’s juxtaposition of the eerie, otherworldly Mellotron with the earthy, more richly textured sounds of Robert Fripp’s harmonium.

Neil Young’s *Live at the Cellar Door* (LP, Reprise 535854-1) is surely one of the *biggest* records in my collection: not only for the huge piano sound in some songs but for the similarly big sound of Young’s acoustic guitar in the rest of this solo-performance album. Reproduced correctly, Young’s old Martin dreadnought should have not only good scale but also a wide range of intensities, with peaks that border on the out-of-control—as in “Don’t Let It Bring You Down,” where the strings are tuned down a full step, and the bottom string is tuned down yet another full step, to C. The CL-38u stood alongside my own Shindo Masetto in allowing that simple acoustic guitar to sound almost dangerous—and while I hope and intend not to overuse this reference, I will add that my dog, who barks at the sounds of big trucks rolling through the village, flew into a rage when I played this song at only a moderate level.

Based on listening with CD and USB DAC sources, the CL-38u’s line inputs offered the same sonic characteristics as its phono section: good balance, very good dynamic range, and a timbral presentation that left little doubt as to the Luxman’s active components of choice. As with most other gear of my acquaintance, Loudon Wainwright III’s *The BBC Sessions* (AIFF file ripped from CD, BBC SFRSCD073) sounded somewhat brittle, the Luxman refusing to round off its edges, but with a nice sense of immediacy and very good musical momentum and flow for digital playback. And after listening to a vinyl version of violinist David Oistrakh and Jascha Horenstein’s recording of Bruch’s *Scottish Fantasia*, with the London Symphony (LP, Decca/Speakers Corner SXL 6035), I played the same thing on CD (London/Classic Compact Discs CSCD 6337), and again luxuriated in the Luxman’s realistically warm way with strings and excellent sense of scale.

### Conclusions

Here’s a pretty safe bet: To the most casual observer, the Luxman Classic CL-38u is either *the preamp with the wooden cabinet* or *the preamp with the tone controls*. Both reactions are understandable, but each does this product a disservice. First and foremost, the CL-38u is a distinctly musical product whose sonic strengths happened to nicely mesh with my

## ASSOCIATED EQUIPMENT

**Analog Sources** Garrard 301 turntable; EMT 997, Thomas Schick tonearms; Ortofon CG25i, Miyajima Premium BE Mono II, EMT OFD 15 & TSD 15 pickup heads.

**Digital Sources** Halide Designs DAC HD USB D/A converter; Apple iMac G5 computer running Audirvana Plus 1.5.12 playback software; Sony SCD-777ES SACD/CD player.

**Preamplification** Hommage T2 step-up transformer, Shindo Masetto preamplifier.

**Power Amplifiers** Shindo Corton-Charlemagne (monoblocks) & Haut-Brion.

**Loudspeakers** Altec Valencia, DeVore Fidelity Orangutan O/96.

**Cables** USB: WireWorld Revelation 2.0. Interconnect: Audio Note AN-Vx, Nordost Blue Heaven, Shindo Silver. Speaker: Auditorium 23. AC: manufacturers’ own.

**Accessories** Box Furniture Company D3S rack (source & amplification components).—Art Dudley

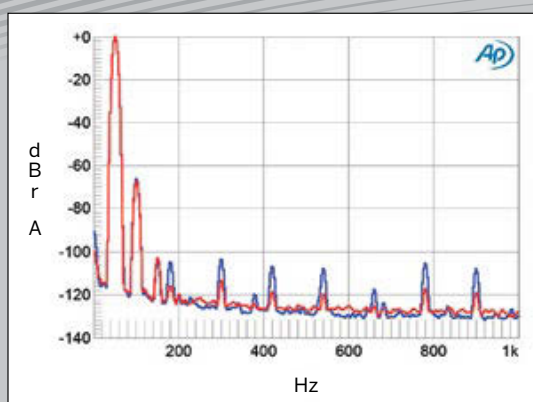
own priorities. As for the rest . . . well, I could take or leave the tone controls, but I admit that I was delighted to have a mono switch *and* a balance control, neither of whose use smudged the sound.

And \$4200 for a full-function (line plus phono), Japanese-made preamplifier of this caliber is not just a good value: It’s an exceptional value.

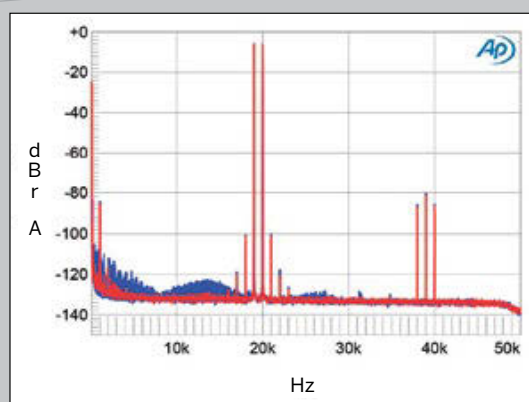
Perhaps because the cosmetics of the Classic CL-38u and my Shindo Masetto preamp are poles apart—the only physical characteristic the two products have in common is the very welcome fact that neither is any bigger than it needs to be—I was a little surprised at how effectively the former stepped in for the latter. And after a couple of months with the Luxman in my system, I was still in no great rush to push it out the door. Throughout that time, I derived no less pleasure from my music collection than I’m used to with the Shindo. That may sound to some like faint praise, but any number of my reviewer colleagues will agree that the products that most deeply impress us are often the ones of which we find ourselves saying, “Yeah, I could live with that.”

I could very easily live with the Luxman Classic CL-38u. Strongly recommended. ■

### measurements, continued



**Fig.7** Luxman CL-38u, spectrum of 50Hz sine wave, DC-1kHz, at 2V into 100k ohms (left channel blue, right red) (linear frequency scale).



**Fig.8** Luxman CL-38u, HF intermodulation spectrum, DC-50kHz, 19+20kHz at 2V peak into 100k ohms (left channel blue, right red) (linear frequency scale).

greater than 10k ohms it will offer very low distortion. The line-stage’s distortion signature was primarily second harmonic (fig.7), and intermodulation distortion was also low (fig.8).

These days, full-function preamplifiers such as this one, offering MM and MC phono inputs as well as versatile tone controls, are rare—but the measured performance of Luxman’s Classic CL-38u doesn’t appear to be compromised in any way, either by its versatility or by its exclusive use of tubes.—John Atkinson

A woman with blonde hair, wearing large over-ear headphones and a white long-sleeved shirt, is sitting on a white modern sofa. She is looking down at a book or magazine in her lap. In the foreground, a silver Sprout audio device with a wooden top is on a white surface. A black cable is plugged into the front of the device. The background shows a brick wall and a potted plant.

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MICHAEL FREMER

# Bricasti Design M28

## MONOBLOCK POWER AMPLIFIER

**G**oogle *Bricasti* and all that comes up are sites relating to Bricasti Design products. The name must be fanciful—it sounds Italian, but cofounders *Brian Zolner* and *Casey Dowdell* most likely are not, and the company's headquarters are not in Milan or Turin but in Massachusetts.

While its name might be whimsical, nothing else about Bricasti is. As John Marks reported in his review of Bricasti's M1 DAC in the August 2011 issue,<sup>1</sup> both founders previously worked at Lexicon: Dowdell as a DSP-software engineer, Zolner as international sales manager. Bricasti develops its products in conjunction with Aeyee Labs, formed by a group of ex-employees of Madrigal Audio Laboratories and based in New Haven, Connecticut.

The storied Madrigal Labs was founded by the late Sandy Berlin, who purchased the assets of Mark Levinson Inc., and founded Madrigal to design and manufacture, among other products, a second generation of Mark Levinson products. Harman International eventually purchased Madrigal, and the Mark Levinson brand became the core of Harman's Luxury Audio Group.

Bricasti Designs' first product, the M7 Stereo Reverb Processor, aka the M7 Reverb, was introduced in 2007 and was extremely well received by the pro-audio world. Their second product, the M1 DAC, introduced in 2011, has won high praise in recording studios and in audio enthusiasts' homes.

### Description

With its black faceplate and round, powder-gray buttons, the M28 monoblock's physical resemblance to a Mark Levinson product is neither surprising nor coincidental—nor is its premium build quality. The top, bottom, and side panels are each milled and CNC-machined from a block of aluminum 3" thick, then anodized; the labels and markings are laser etched. The nearly cubical M28 measures 11.9" wide by 13.8" high by 17.8" deep, weighs almost 80 lbs, and sits on four integral circular feet. Bricasti makes it—including all CNC milling and aluminum fabrication—in their factory



in Shirley, Massachusetts. The M28 costs \$30,000/pair.

The M28's circuitry is fully balanced, dual-differential from its XLR input to its speaker outputs. It comprises two complete and separate signal paths—one inverting, one non-inverting—beginning with matched voltage-gain-stage components in the differential input stage, followed by a current gain stage of 24 bipolar transistors: 12 inverting, 12 non-inverting.

The M28's dual-bank power supply—two supplies in one—has a total of 240,000µF of capacitance and two separate transformer windings. "Each electronic element mates to a purpose-built location within the chassis," Bricasti proclaims on their website. "Thoughtful use of mass and

<sup>1</sup> See [www.stereophile.com/content/fifth-element-67](http://www.stereophile.com/content/fifth-element-67).

## SPECIFICATIONS

**Description** Solid-state monoblock power amplifier. Inputs: 1 unbalanced (RCA), 1 balanced (XLR). Outputs: 1 pair binding posts. Rated power output: 200W into 8 ohms (23dBW), 400W into 4 ohms (23dBW). Frequency

response: 1Hz-150kHz, ±0.1dB. Signal/noise: >100dB (no reference level given). Input impedance: N/A. Gain: 26dB. Power consumption: 60W, 2W standby.

**Dimensions** 11.9" (305mm) W by 13.8" (355mm) H by

17.8" (457mm) D. Weight: 79.2 lbs (36kg) net, 99 lbs (45kg) shipping.

**Serial numbers of units reviewed** 1006, 1007.

**Price** \$30,000/pair. Approximate number of dealers: Not disclosed. Warranty: 5 years,

limited.

### Manufacturer

Bricasti Design, Ltd.  
2 Shaker Road, Building J100  
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Tel: (978) 425-5199.  
Web: [www.bricasti.com](http://www.bricasti.com).



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passive ventilation assure the uniform distribution of heat and a cool touch under any load.” The M28’s claimed power output is 200W into 8 ohms or 400W into 4 ohms, with typically less than 0.005% total harmonic distortion at 1kHz at full rated power. The claimed frequency response is 1Hz–150kHz,  $\pm 0.1$ dB. The gain is 26dB, the signal/noise ratio greater than 100dB.

### Setup and Use

The M28’s flat, uncluttered rear panel made connections easy. The single-ended RCA and balanced XLR inputs are near the top, the speaker binding posts in the middle, and a 15A IEC jack near the bottom. Adjacent to the AC input is a trigger in/out jack, an RS422 port (for diagnostic monitoring, though not by the user), and an input trim control used for gain matching when the M28 is used with Bricasti’s M1, or any other DAC equipped with a digital-domain volume control.

Unfortunately, the M28s and Boulder Amplifiers’ fully balanced, dual-differential 2110 preamplifier, which I reviewed in the March 2015 issue, were ships passing in the night. The Bricastis arrived within days of the Boulder’s heading off to John Atkinson’s test bench to be measured, and from there to the 2015 Consumer Electronics Show. That mating would have taken full advantage of the M28’s own fully balanced, dual-differential capabilities.

But having previously driven balanced amplifiers with the darTZeel NHB-18NS preamplifier, I didn’t feel the M28s’ performance would be in any way compromised. To be certain, during my listening I drove the Bricastis from both the darTZeel’s single-ended outputs and from its transformer-coupled balanced outputs. Then, when comparing the M28s’ sound with that of darTZeel’s own NHB-458 monoblocks, I drove the latter both single-ended and from the preamp’s balanced output (the darTZeel NHB-458s are also single-ended, and electronically reconfigure a balanced input to single-ended).

Though the darTZeel combo sounds best connected via its unique 50 ohm, transmission-line link terminated

**The M28’s dual-bank power supply—two supplies in one—has a total of 240,000 $\mu$ F of capacitance and two separate transformer windings.**

with BNC connectors, the single-ended and balanced connections produced no differences that I could hear. Nor did I hear any differences in tonality between 15’ runs of single-ended and balanced interconnects between the darTZeel preamp and the M28s.

### Out of the Box: The Unexpected

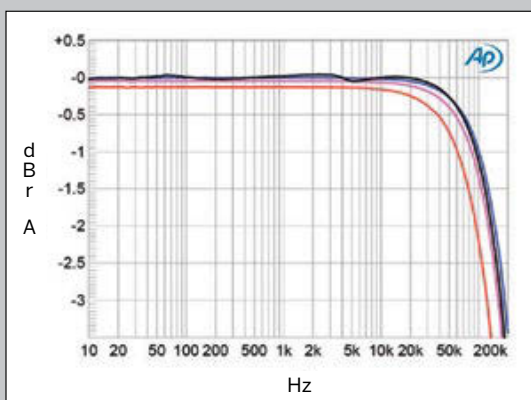
Before installing the M28s, I’d been repeatedly playing *The New Standard*, an all-analog recording of a jazz trio comprising pianist Jamie Saft, bassist Steve Swallow, and drummer

Bobby Previte, and engineered by the great Joe Ferla (2 LPs, Rare Noise RNR 041 LP). (Following these sessions, Ferla retired from engineering to pursue a career singing and playing guitar.) The album was recorded live to two-track  $\frac{1}{2}$ " tape using an Ampex recorder, with no equalization or compression and just a bit of reverb. Swallow’s electric bass was plugged directly into the board, and Previte’s drums were fairly close-miked in an isolation booth, with a Beyer M-88 mike for the kick drum. That kick drum produces *thunder*—with Swallow’s direct-injected bass, the result is a *Jurassic Park*-like low end. The overall sound is thick and rich, with the warm, earthy textures only AAA production seems able to convey.

Reading the M28’s specs and Bricasti’s descriptions of it had led me to expect to hear certain things from it. The M28’s huge current reserves are claimed to produce iron-fisted control of a speaker’s woofers. Its ultrawide bandwidth, low distortion, and banks of transistors had primed me for something that sounded like the Soulution 710. As I said in my review of it in the August 2011 issue, that \$50,000 stereo amp—at 176 lbs, it weighs more

## MEASUREMENTS

I performed a full set of measurements on the M28 (serial number 1006) using my Audio Precision SYS2722 system (see [www.ap.com](http://www.ap.com) and the January 2008 “As We



**Fig.1** Bricasti M28, balanced frequency response at 2.83V into: simulated loudspeaker load (gray), 8 ohms (blue), 4 ohms (magenta), 2 ohms (red) (1dB/vertical div.).

See It,” [www.stereophile.com/content/measurements-maps-precision](http://www.stereophile.com/content/measurements-maps-precision)). As the Bricasti amplifier is specified as having a maximum output power of 200W into 8 ohms, I preconditioned it before the measurements by running it at one-third that power, 67W, into 8 ohms for an hour, following which the top panel was warm, at 99.3°F (37.4°C), and the side panel covering the internal heatsink was only slightly hotter, at 106.7°F (41.5°C). The THD+noise percentage at this power level was 0.0017% with the amplifier cold, 0.002% with it fully warm.

The voltage gain at 1kHz into 8 ohms was 26.9dB with a balanced input signal, 26.65dB with an unbalanced signal, and the amplifier preserved absolute polarity (ie, was non-inverting) for both inputs. The rear-panel level-trim control

applied three attenuation steps, each of 6.1dB. The unbalanced input impedance was a usefully high 88k ohms at 20Hz and 1kHz, dropping slightly to 36k ohms at 20kHz. The balanced input impedances were twice these values, as expected. The output impedance, including 6’ of speaker cable, was very low, at 0.05 ohm at low and middle frequencies, rising to 0.06 ohm at the top of the audioband. As a result, the variation in response due to the interaction between this source impedance and the impedance of our standard simulated loudspeaker (see [www.stereophile.com/content/real-life-measurements-page-2](http://www.stereophile.com/content/real-life-measurements-page-2)) was just  $\pm 0.05$ dB (fig.1, gray trace). The response was perfectly flat in the audioband, and down by 3dB at 180kHz into 8 ohms (blue trace). As



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Audio by Van Alstine	Concert Fidelity	Harbeth	MarkAudio	Playback Designs	Sound Design Lab	Vibex
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	Esoteric	Kaiser Acoustics	MrSpeakers, LLC	Ryan Speakers	The Voice That Is	
	Essence of Music	KEF	Mundorf	Sadurni Acoustics	Thorens Turntables	
		Kimber Kable	Muraudio	Salk Signature Sound	Thrax Audio	
				Sanders Sound Systems, LLC	Through the Sound Barrier	

*Exhibit list as of 2/28/15.  
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than two M28s—produced “unparalleled transparency, startling transient cleanness, and a level of overall refinement that easily surpassed that of any other amplifier I have heard. The 710 *gripped* my Wilson Audio MAXX 3 speakers as has no other amplifier in my experience, acting and reacting with effervescent speed.”<sup>2</sup>

The M28's uncluttered rear panel offers single-ended and balanced inputs.

However, out of the box and dead-of-winter-right-off-the-truck cold (but given a day to reach room temperature), the M28s sounded more tube-like, more “soft and loose” than “fast and tight.” Though it was consistent in these and other regards from top to bottom, the M28s didn't exactly provide the woofer control advertised on Bricasti's website. Bass was soft and rhythmically bland. Privite's cymbals lacked the shimmer and definition I'd become accustomed to. While this recording's sound isn't airy, and doesn't leave generous amounts of space between notes, it has *some* of both. But both were now obscured by the M28s' sluggishness.

I tried plugging the Bricastis directly into the wall, instead of into my Shunyata Research combo of Hydra Triton and Typhon power conditioners. I also tried a variety of power cords in place of Shunyata's ZTron Alphas. While I heard differences, as I always do when I make such changes in a system, the sound was less coherent with the M28s plugged into the wall, and there was no improvement of control on the bottom or extension on top.

Early in the review period, a friend of my wife's visited from out of town, accompanied by her music-writer husband, who is definitely not an audiophile. In fact, he was hesitant about visiting at all, fearing I'd subject him to “audiophile” records. Happily, I had all of the recordings he asked to hear, some of it obscure. He came away from the

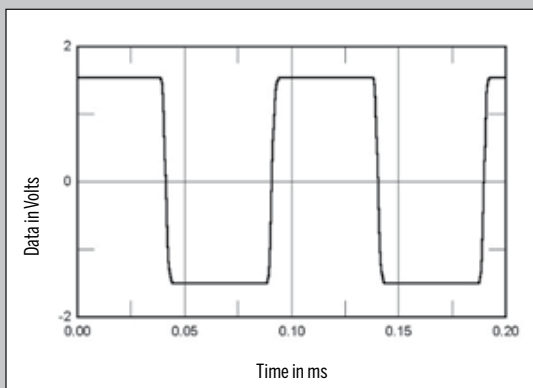


experience thinking that one could be an audiophile *and* a music lover. He seemed to enjoy the Fremer Hi-Fi Show, but after a while, though he'd said nothing, I could tell he was less than happy with a few things we played. Then he requested the title track of Television's *Marquee Moon* (LP,

<sup>2</sup> See [www.stereophile.com/content/solution-710-power-amplifier](http://www.stereophile.com/content/solution-710-power-amplifier).

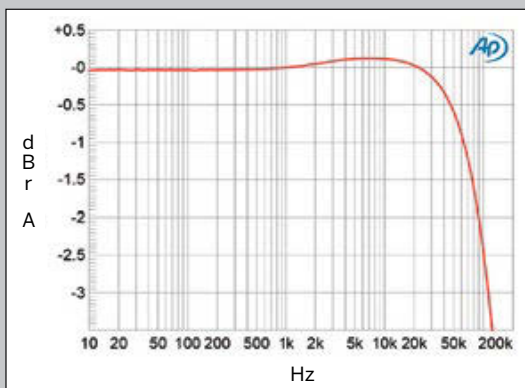
## measurements, continued

a result, the M28's reproduction of a 10kHz squarewave was essentially perfect, with no overshoot or ringing (fig.2). Fig.1 was taken with balanced drive; with unbalanced drive (fig.3), the response had a small, +0.18dB plateau in the treble, and the ultrasonic output rolled off a little earlier than with a balanced input signal.



**Fig.2** Bricasti M28, small-signal 10kHz squarewave into 8 ohms.

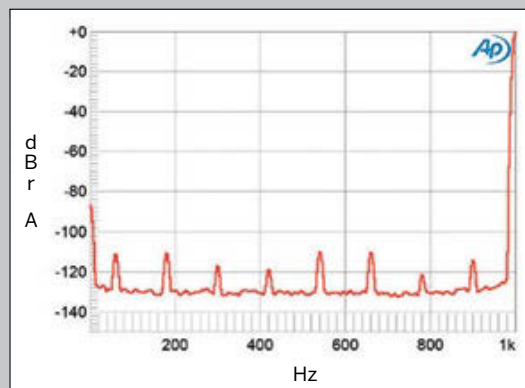
The Bricasti M28 is a very quiet amplifier. Its unweighted wideband signal/noise ratio, ref. 1W into 8 ohms with the input shorted, was 80.5dB, improving to 84.7dB when the measurement was restricted to the audioband, and to 85.7dB when A-weighted. Spectral analysis of the amplifier's low-frequency noise floor while it drove a 1kHz tone



**Fig.3** Bricasti M28, unbalanced frequency response at 2.83V into 8 ohms (1dB/vertical div.).

at 1W into 8 ohms (fig.4) revealed that the power-supply-related spurs were 60Hz and its odd harmonics—generally due to magnetic interference from the power transformer—but even the highest in level lay at just -110dB (0.0003%).

Figs. 5 and 6 plot the percentage of THD+noise against output power into



**Fig.4** Bricasti M28, spectrum of 1kHz sinewave, DC-1kHz, at 1W into 8 ohms (linear frequency scale).



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Elektra 7E-1098).

This bright, shimmering, electric-guitar-drenched tune has a sound that should *bite*—it's all about the high-pitched top of the fretboard. Richard Lloyd's reggae-like rhythm guitar should sear with sharp edges, and Tom Verlaine's leads should be wiry and crystalline. (The two switch roles on this track, which adds another layer of interest.) The cymbal crashes should crunch, shattering the air. The sound should be as severe and unflattering as Robert Mapplethorpe's cover photo. (Television turned down a contract with Island Records, reputedly because a demo produced by Brian Eno was too bright; they wanted something with greater atmosphere. If that demo was even brighter than this, I'd love to hear it!)

None of this is accidental: Lloyd himself essentially produced the album, which was recorded at Phil Ramone's A&R Studios, engineered by Andy Johns (who's credited as producer), and mastered at Sterling Sound by Greg Calbi and Lee Hulko. It's a great record—even if, when I opened for Television doing standup at Boston's Paradise Club, they were snotty and unfriendly.

But that afternoon, as I played it for our guest, "Marquee Moon" sounded soft and limp. The recording doesn't contain much bass, but bassist Fred Smith's lines should be clean, crisp, and well defined. They weren't, and I heard. My music-critic guest heard it. Still, he was silent.

"That's just not rocking, is it?" I said. I substituted the darTZeels and played the song again.

This non-audiophile said, "Tom and Richard, thank you!"

#### After Break-In

I've found that breaking in an audio component can usually convert a thin, bright, edgy sound into smoother textures, more nuanced transients, and deeper soundstages. When I gave the Bricastis a chance to break in by leaving them on with the Meridian Music Server set to Swim throughout the week of CES, they tightened up on top, bottom, and in



**The M28's sound was still more smooth and sweet than fast and tight.**

between. The upper octaves greatly opened up, producing air and shimmer where appropriate, where previously there'd been little.

By the time I'd returned from CES 2015, the Bricasti M28s

were broken in: the top end had fully opened up, the bottom had tightened, and the overall sound was considerably more transparent. And the positive aspects of the amps' sound that had been obvious from the start—a wide, especially deep and expansive soundstage, and an absence of grain and unnatural etch—had survived breaking in.

I went back to that Television song. The guitar transients were sharper, the top end more extended and searing. But the M28's sound was still more smooth and sweet than fast and tight.

The M28 shared the Soultion 710's "overall refinement" but not its "startling transient cleanness." Some of the M28's refinement comes from slightly soft as opposed to razor-sharp transients. The 710's transients were fast, clean, and, when appropriate, sharp. The M28's transients were consistently somewhat blunted, though pleasingly smooth.

The Electric Recording Company recently reissued an extremely rare and valuable LP of husband and wife Leonid Kogan and Elizaveta Gilels performing sonatas for two violins by Leclair, Telemann, and Ysaÿe (LP, UK Columbia/ERC SAX 2531). A 1964 original pressing sold for \$3803 on eBay, according to Popsike.com, so ERC's asking price of £300 (\$450) is reasonable for a reissue meticulously

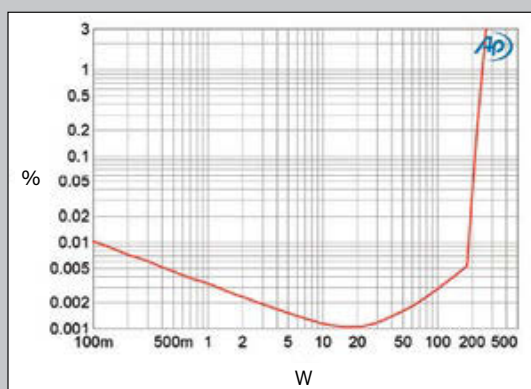
#### measurements, continued

8 and 4 ohms, respectively. With clipping defined as the point at which the THD+N reaches 1%, the M28 exceeded its specified power of 200W into 8 ohms (23dBW), clipping at 250W (24dBW). Into 4 ohms, the Bricasti amplifier clipped at 490W (23.9dBW). I haven't shown the clipping behavior

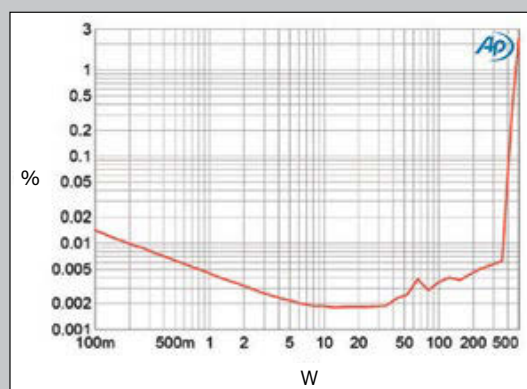
into 2 ohms, as the M28's protection circuit operated at 128W into that load. Turning the amplifier off and on again restored normal operation.

The downward slope of the traces below 10W or so in figs. 5 and 6 suggests that even with the low noise, the M28's actual distortion lies below that

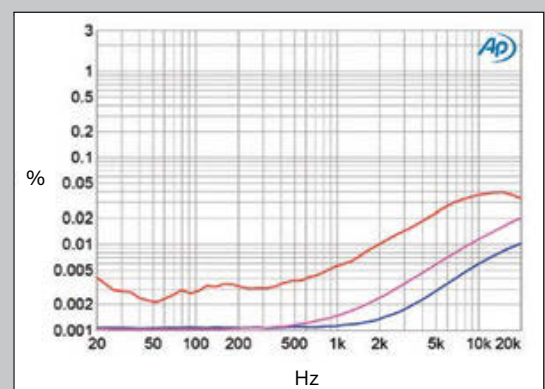
noise floor. Therefore, to be sure I was measuring actual distortion, I examined how the amplifier's THD+N percentage varied with frequency at 9V, which is equivalent to 10W into 8 ohms, 20W into 4 ohms, and 40W into 2 ohms. The results are shown in fig.7: the THD is superbly low at or below 1kHz,



**Fig.5** Bricasti M28, distortion (%) vs 1kHz continuous output power into 8 ohms.



**Fig.6** Bricasti M28, distortion (%) vs 1kHz continuous output power into 4 ohms.



**Fig.7** Bricasti M28, THD+N (%) vs frequency at 9V into: 8 ohms (blue), 4 ohms (magenta), 2 ohms (red).



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mastered from the original analog tape using a restored all-tube cutting system, packaged to look and feel like the original edition, and limited to 300 copies. The flat-profile pressing from Record Industry, in the Netherlands, is perfect: not a single pop or click, and “black” backgrounds.

The M28's sonic character perfectly complemented this recording, producing natural attacks, and rich, full-bodied sustain that created physical, three-dimensional images of the two violins, their textures and tonality intact. I think that the Soultion 710, whose sound has a bit less meat on its bones, would somewhat gloss over the textures that the M28 got just right. Even a diehard tube lover would be impressed.

As he or she would be with how the M28s reproduced the rich massed strings and soaring horns in the final movement of Mahler's Symphony 9 in another superb ERC reissue, this one of Sir John Barbirolli conducting the Berlin Philharmonic Orchestra, originally issued in 1964 on HMV (2 LPs, EMI/ERC ASDS 596/7). ERC's edition will set you back some \$850—but on the used market, clean originals can go for much more. And no digitization can compare with or even approach the analog version's sonic and emotional majesty.

Here, the Berlin Philharmonic is heard from somewhat closer than Deutsche Grammophon's usual distant perspective. This one might get you swooning even through a boom box; through the M28s, the depth and expanse of the soundstage were generous, the tone of massed strings lush, lustrous, and full-bodied. The violins were sweet, with a gliding sheen and no harsh or edgy overlay, and the bigger strings had a visceral growl and fullness that the Bricastis

**The M28's  
strongest  
suit was its  
reproduction  
of the  
midrange.**

## ASSOCIATED EQUIPMENT

**Analog Sources** Continuum Audio Labs Caliburn turntable & Cobra tonearm & Castellon stand; Brinkmann Spyder turntable & 12.1 tonearm; George Warren turntable; Kuzma 4Point, Mørch DP-8 tonearms; Lyra Atlas & Etna, Ortofon MC A90 & MC A95, Ikeda Kai, Miyajima Labs Zero (mono) cartridges.

**Digital Sources** Simaudio Moon Evolution 650D DAC-transport & Moon Evolution 820S power supply; Ayre Acoustics QA-9 A/D converter; Lynx Hilo A/D-D/A converter; Meridian Digital Media System; Pure Vinyl & Vinyl Studio playback software.

**Preamplification** Ypsilon MC-10L & MC-16L step-up transformers; Luminous Audio Arion, Pure Audio, Ypsilon VPS-100 phono preamplifiers; darTZeel NHB-18NS preamplifier.

**Power Amplifiers** darTZeel NHB-458 monoblocks.

**Loudspeakers** Wilson Audio Specialties Alexandria XLF.

**Cables** Interconnect: Snake River Audio Boomslang (S/PDIF), Stealth Sakra & Indra, TARA Labs Zero Evolution & Zero (XLR), Teresonic Clarison Gold, Wireworld Platinum Eclipse. Speaker: TARA Labs Omega Gold, Wireworld Platinum Eclipse 7. AC: Shunyata Research ZTron Sigma & Sigma HC & Sigma Digital.

**Accessories** Shunyata Research Hydra Triton & Typhon power conditioners (2 sets); Oyaide AC wall box & receptacles; ASC Tube Traps; RPG BAD, Skyline, Abffusor panels; Stillpoints Aperture room panels; Synergistic Research UEF products (various); Symposium Rollerblocks & Ultra platform; HRS Signature SXR, Finite Elemente Pagode stands; Audiodharma Cable Cooker; Furutech, Stein Audio demagnetizers; Furutech deStat; Loricraft PRC4 Deluxe, Audiodesksysteme record-cleaning machines.—**Michael Fremer**

### measurements, continued

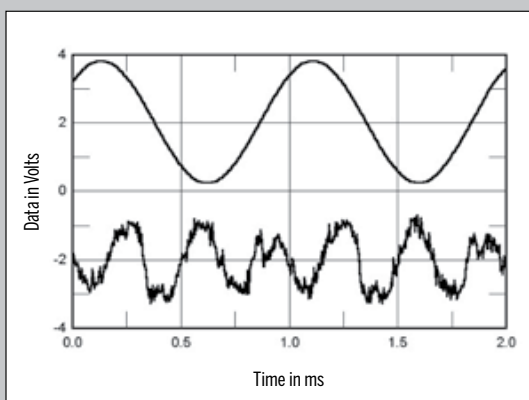
even into 2 ohms (red trace), but rises slightly in the treble, presumably due to the circuit's decreasing amount of gain-bandwidth margin reducing the amount of corrective negative feedback available. But even at 20kHz into 2 ohms, the THD+N is still just 0.04%.

The distortion signature was predominantly third-harmonic in nature

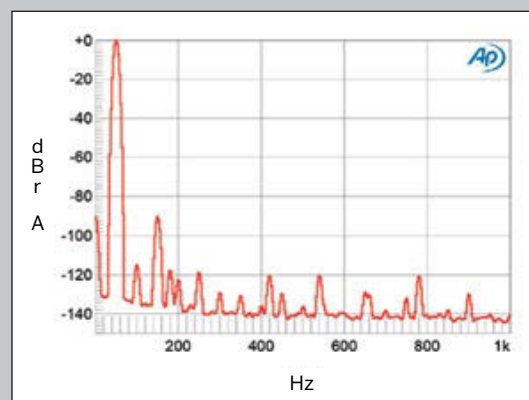
(fig.8), though fig.9 reveals that, even at 40% power into 4 ohms, this lay at -90dB (0.003%). Even with the slight rise in THD in the top octave, intermodulation distortion with an equal mix of 19 and 20kHz tones at a level a few dB below visible waveform clipping on the oscilloscope into 4 ohms was very low (fig.10). The difference component

at 1kHz lay at just -112dB below the peak signal level (0.00025%), and the higher-order products at 18 and 21kHz were at -97dB (0.0014%).

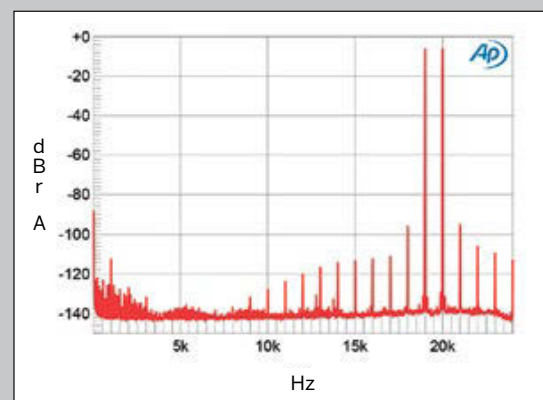
Its measured performance reveals Bricasti's M28 to be a worthy stablemate to the company's superb-measuring and equally superb-sounding M1 D/A processor.—**John Atkinson**



**Fig.8** Bricasti M28, 1kHz waveform at 75W into 8 ohms, 0.0019% THD+N (top); distortion and noise waveform with fundamental notched out (bottom, not to scale).



**Fig.9** Bricasti M28, spectrum of 50Hz sinewave, DC-1kHz, at 200W into 4 ohms (linear frequency scale).



**Fig.10** Bricasti M28, HF intermodulation spectrum, DC-24kHz, 19+20kHz at 200W peak into 4 ohms (linear frequency scale).



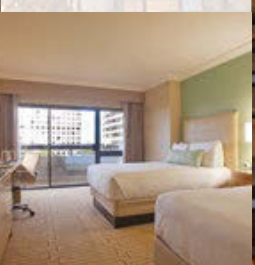
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couldn't possibly have expressed before being fully broken in.

In "C Jam Blues" (better known as "Duke's Place"), from a reissue of Duke Ellington's *Blues in Orbit* (2 45rpm LPs, Columbia CS 8241/ORG 120), Ray Nance takes a steely-sounding solo on violin that should cut through sharply, and Paul Gonzalves's tenor-sax solo should sound *reedy*—but the M28 somewhat smoothed over the sound of both. The cymbal shimmer and sharp rim-shot cracks from drummer Sam Woodyard weren't as sharply rendered as they can be. The M28s did best here by making audible, deep in the reverb, the furthestmost recesses of Columbia's 30th Street Studios.

One of my benchmark recordings is a reissue of Tony Bennett's *At Carnegie Hall* (2 LPs, Columbia/Analogue Productions AAPP 823). The M28s effectively conveyed the size of the hall, but not all of the air around Bennett's voice. The voice itself, however, was well fleshed out and smooth sounding.

The M28's strongest suit was its reproduction of the midrange—voices were particularly well rendered. It had been a long time since I'd played Eva Cassidy's *Songbird* (LP, Blix Street/S&P 501), and I'd remembered it as having a somewhat bright overlay, behind which lurked some obvious processing. Through the M28s it sounded rich and natural. When I went back to my reference darTZeel amps, I could hear more of the reverb behind Cassidy's voice, but the voice itself sounded equally natural.

Given the M28's claimed frequency response, you'd expect full extension at the frequency extremes, and that's what I heard—but not necessarily what I described about the Soulution 710's sound: "very tight . . . bass that revealed transient details that more sluggish amps cover under a pleasing warmth." Though the M28's bottom end went deep, it wasn't as fast or as well articulated as some others. Still, it was pleasingly warm, and produced "the visceral *whomp*" I'd found lacking in the 710.

### Conclusions

I compared the M28 with the now-discontinued Soulution 710 because I found them to have polar-opposite sonic personalities, despite their somewhat similar specs. Both are wideband, but one, the Soulution, is fast, tight,

punchy, and superdetailed, while the other the Bricasti, is somewhat slower, less tightly sprung, less punchy, and perhaps less detailed, particularly in terms of transient response. As a result, the Soulution 710 was more exciting and transparent, but its sound was less fully fleshed out in the midrange—some would call it skeletal. The Bricasti M28's sound was somewhat slower and less exciting, but more harmonically generous and more fully fleshed out in the midrange. Depending on your preference, you could say that one is more about "hi-fi," the other more about "music"—but I think that would be to simplify a complex set of variables. And how you might react to the sound of either would also depend on your tastes and your system.

Before shutting down the M28s and packing them up, I played *The New Standard* one last time. I found that the Bricastis' bottom-end control and articulation had considerably improved with further break-in—Bobby Previte's kick drum was now more than mere "bass," and Steve Swallow's e-bass plucks were far better delineated. Cymbal shimmer was also greatly improved, and the upper octaves of Jamie Saft's piano contained more of the metallic ring of the strings mixed in with the woody resonance of the instrument's case. In other words, rhythm'n'pacing had greatly improved.

Overall, though, I still found the M28's overall sound, though fully extended on bottom, to be only moderately well articulated compared to my far more expensive reference monoblocks, the darTZeel NHB-458s (or to what I recall of the Soulution 710's sound). However, the M28 was faultlessly rich and smooth in the critical midrange, where most of the music lives. On top, it was sweet and less than fully open, but insufficiently fast and precise for my taste.

Bricasti Designs' M28 is a powerful, beautifully built amplifier. Its sound is surely the result of deliberate design choices—from top to bottom, it spoke with one voice. Given its design pedigree, I'm sure it will produce impressive measurements on JA's test bench. But I need more *metal*, where and when it's called for. The Bricasti M28s might have provided the perfect match for my older reference speakers, the Wilson Audio MAXX 3s, whose sound had more metal on top. That's hi-fi for you. ■

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The Absolute Sound, issue 246, Oct - '14



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FRED KAPLAN

# Simaudio Moon Evolution 740P

## LINE PREAMPLIFIER



**T**ransparency is a trait we all value in a hi-fi rig, and it's a concept I've long thought I understood. A system that tosses up the illusion of a clear, spacious soundstage, on which you can hear—almost see—all of the singers and/or instruments, from side to side and, especially, from front to way, way back: that's the ticket. Still, although such transparency is a sign that you've entered the realm of fine sound, it's not an absolute requirement. Tonal accuracy, dynamic range, a certain *thereness* that conveys the emotional heft or delicacy of music—those things come first. Without them, the most precisely delineated soundstage is like an architect's sketch of an oil painting.

But after listening to Simaudio's Moon Evolution 740P preamplifier, I see that I've had it wrong all these decades. Those other aspects are still more important (I've been right about that), but I'd had only a partial understanding of transparency, because I've never heard before, at any length, a system that delivers the concept full-blown. But now that I've heard it, I also realize that transparency isn't a mere audiophile bonus; it enriches, even transforms, all of

those other qualities—tonal accuracy, dynamic range, that *thereness*—that excite us when a great recording sounds so close to the real thing.

But let us begin at the beginning.

### Description and Design

Simaudio's 740P (\$9500) is a solid-state line-stage preamplifier with a dual-mono configuration and balanced differential audio circuitry—a culmination of the Quebecois company's premier series, the Moon Evolution models, which itself is the latest chapter of their storied 35-year presence in high-end audio. Outwardly, the 740P resembles previous Moon Evolution models: the attractive, curved-edged design (available in all black, all silver, or a combination called 2-Tone); the ultrarigid aluminum case with sharp thumbscrew cones protruding from the bottoms of four triangular pillars, to reduce the effects of spurious vibrations. But there are new refinements, inside and out.

Most touted in the 740P's manual is Simaudio's fully discrete, four-stage, proprietary M-LoVo low-voltage regulator,

## SPECIFICATIONS

**Description** Remote-controlled, solid-state, dual-monophonic line preamplifier. Analog inputs: 2 balanced (XLR), 3 single-ended (RCA). Analog outputs: 1 balanced (XLR); 2 single-ended, fixed and variable (RCA). Gain: 9dB, M-eVOL2 volume knob, 530 increments of 0.1dB.

Frequency response: 5Hz–100kHz, +0/–0.1dB. Signal/noise: 120dB at full output, 20Hz–20kHz. Crosstalk: –116dB at 1kHz. Input impedance: 22k ohms. Output impedance: 50 ohms. Power consumption: 20W at idle. **Dimensions** 18.6" (476mm) W by 4" (102mm) H by 16.3"

(419mm) D. Shipping weight: 35 lbs (16kg).

**Finishes** Black, Silver, 2-Tone.

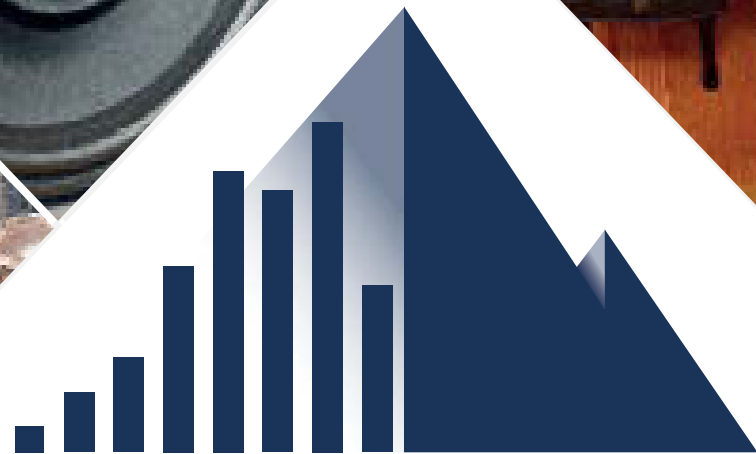
**Serial number of unit reviewed** P9123793.

**Price** \$9500. Approximate number of dealers: 75. Warranty: 10 years with registration.

**Manufacturer**

Simaudio, Ltd.,  
1345 Newton Road,  
Boucherville, Quebec  
J4B 5H2, Canada.  
Tel: (877) 980-2400,  
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said to produce “exceptionally fast, precise and stable DC voltage” that results in “a power supply with a virtually unmeasurable noise floor.” Also designed especially for the Evolution line is an Independent Inductive DC filter, which isolates all the electronic parts in the signal path that are fed DC power. The signal path is shortened, and its impedance lowered, thanks to a four-layer circuit board—two layers for the audio signals, one for the ground, one for the power supply—etched with tracings of pure copper. The power supply, which has five stages of DC voltage regulation and extensive choke filtering, is oversized so that, as the demand for current swells, the supply of voltage dips only slightly, making possible (the manual claims) effortless dynamic peaks with no change in the music’s detail, color, or character.

Simaudio’s M-eVOL2 volume control comprises 530 discrete steps of 0.1dB each, with a variation of less than 0.05dB between channels across the entire volume range. Each line input is “home-theater ready,” meaning that the volume control can be bypassed. A SimLink controller port allows for two-way communication with other Moon Evolution models. Oddly, I discovered that I could also use the remote control to stop, play, pause, and change tracks with my Krell Cipher SACD/CD player.

### Setup

I did all of my listening through Revel’s Ultima Studio2 loudspeakers. LPs were spun on a VPI Classic turntable with JMW Memorial tonearm and an Ortofon Blue Cadenza cartridge, plugged into a Nagra BPS battery-powered phono preamp. Digital discs were loaded into the Krell

Cipher. Cables (single-ended from the phono, balanced from the CD player) were all by Nirvana. For a power amp, I mainly used Simaudio’s Moon Evolution 860A (review in the works), occasionally switching to the power-amp section of their Moon Evolution 700i integrated amp (which I’ve had in my system for some time). To isolate the 740P’s sound, I also plugged the 700i’s preamp section into the 860A. For another comparison, and for other reasons discussed below, I borrowed a Pass Laboratories XP-30 preamp and connected it to the 860A.

The 740P’s manual says that it needs 400 hours of playing time to break in fully; based on my experience, I second that advice. Simaudio also recommends keeping the 740P on at all times: Turn it off for three days, and it takes another three days to warm up again. The good news: If you turn it off for a week or a month, it also takes three days to warm back up.

### Sound

In his review of the Pass Labs XP-30 line preamp in the April 2013 issue, John Atkinson concluded that that unit validated the notion that “the beating heart of an audio system is the preamplifier.”<sup>1</sup> I cocked an eyebrow when I read that, but after spending a few months with the Moon Evolution 740P, I’m inclined to agree. It makes sense: the signal passed through the preamp is what is amplified and converted to acoustic waves; the preamp does its work at extremely low levels that, by themselves, are nearly inaudible; any noise it contributes will be hugely magnified further down the

<sup>1</sup> See [www.stereophile.com/content/pass-laboratories-xp-30-line-preamplifier](http://www.stereophile.com/content/pass-laboratories-xp-30-line-preamplifier).

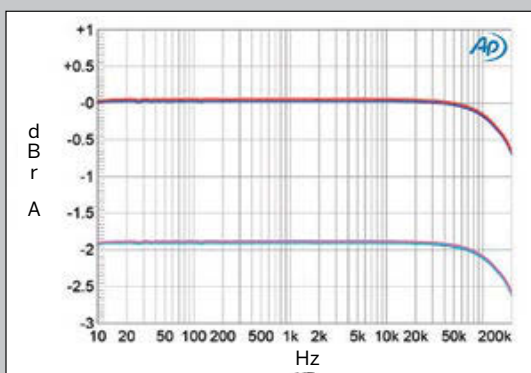
## MEASUREMENTS

I measured the Simaudio Moon Evolution 740P’s electrical performance with my Audio Precision SYS2722 system (see [www.ap.com](http://www.ap.com) and the January 2008 “As We See It,” <http://tinyurl.com/4ffpve4>). The volume control operated in accurate 0.1dB steps, the 740P preserved absolute polarity (ie, was non-inverting) for both fully balanced and fully unbalanced operation, and pin 2 of its XLR jacks was wired hot. The maximum gain was 6.2dB for the balanced and unbalanced inputs

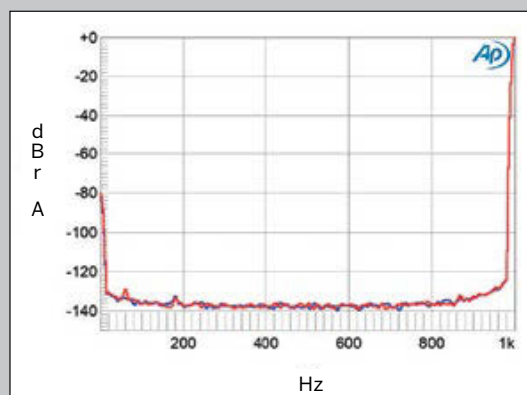
and outputs, rather than the specified 9dB. The input impedance is specified at 22k ohms; for the unbalanced inputs I measured 21.4k ohms at 20Hz and 1kHz, and 11.2k ohms at 20kHz; for the balanced inputs, 35.2k ohms at 20Hz and 1kHz, and 24.8k ohms at 20kHz. The unbalanced output impedance was very low at all audio frequencies, at 75 ohms; the balanced output impedance was twice this value, as expected.

With the volume control set to its maximum value of “80,” the 740P’s balanced frequency response was flat

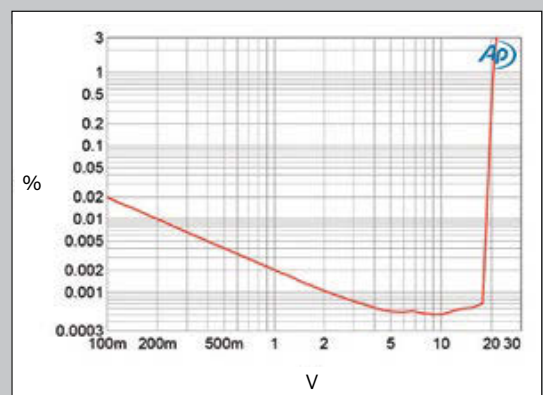
within the audioband, and down by 0.7dB at 200kHz (fig.1, blue and red traces). The response was not affected by reducing the load to 600 ohms (fig.1, cyan and magenta traces), but turning the volume control down to “60” (–20dB) resulted in an ultrasonic rolloff of just 0.3dB at 200kHz. For unbalanced operation, the frequency response was identical to that in balanced operation. Crosstalk was unmeasurable, and the Simaudio’s noise floor was virtually free from power-supply-related spurious (fig.2). The



**Fig.1** Simaudio Moon Evolution 740P, balanced frequency response with volume control set to maximum gain at 1V, into: 100k ohms (left channel blue, right red), 600 ohms (left cyan, right magenta) (0.5dB/vertical div.).



**Fig.2** Simaudio Moon Evolution 740P, balanced spectrum of 1kHz sinewave, DC–1kHz, at 2V into 100k ohms (left channel blue, right red) (linear frequency scale).



**Fig.3** Simaudio Moon Evolution 740P, balanced distortion (%) vs 1kHz output voltage into 100k ohms.



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chain. As you may have noticed from my summary, nearly all of the technical features highlighted in the 740P's manual are claimed to reduce vibrations, distortions, and noise of all kinds. Perhaps this accounts for the 740P's *transparency*.

Whatever the cause, with every album and song I played, I found it hard to take notes. I just sat back—or leaned forward—and soaked in the music, sometimes with an idiotic smile on my face, even if I'd heard the record a hundred times before. Finally, I tried to analyze what was happening. My first scribbled note: "All the music is breathing forth at the same time."

Six months ago, if I'd read that sentence in a review, I'd have shrugged and muttered, "Yeah, well, *my* system does that too." I would have been wrong. My system—an assemblage of perfectly respectable high-end components—*didn't* quite do that.

Take "Nuages," from *Chasin' the Gypsy*, James Carter's tribute to Django Reinhardt (CD, Atlantic 83304-2). In many past reviews I've marveled at how some piece of gear captured the oomph of the bass drum, the clinging of the bells, the clang of the triangle, or the distinctive strumming of each guitar, one metal-strung, the other nylon. But until the 740P, I'd never heard all of these elements in tandem; I'd never heard, at least not continuously, the *rhythm* of the bells playing off the *rhythm* of the drums, or the accordion playing

off the violin, or the guitars trading fours. I'd heard the *sounds*, but I'd been missing something vital about the *music*.

What I'm describing might strike some as mere detail, and they'd be right. It *is* detail: detail that lives in the low-level signals, detail that most preamps (including many very good ones) smudge but that the 740P let shine through—and, in doing so, pumped blood into "the beating heart" (to riff on JA's image) not only of my audio system but also of my music.

Or take "Like a Rolling Stone," from Bob Dylan's *Highway 61 Revisited*, either the SACD (Columbia CH 90342) or, still better, Mobile Fidelity Sound Lab's set of two 45rpm LPs (Columbia/MFSL 2-422). I don't know how many times I've heard this song, but I'd never heard so much of the piano in the mix, or the airy whoosh of the Hammond B-3 so distinctly, or—as a visiting friend, a Dylan fanatic but not an audiophile, commented after listening with me—the raw edge of so much anger in Dylan's voice. But, as with Carter's cover of Reinhardt's "Nuages," what I found most riveting was the band's cohesion: all the music breathing forth at the same time.

I was particularly struck by how the 740P captured the sound of acoustic pianos. One reason pianos don't sound convincing through most stereos (or from most recordings) is that there's so much going on across the range of loudness and frequencies: the percussiveness of the pianist coaxing

#### measurements, continued

unweighted, wideband signal/noise ratio (ref.1V output into 100k ohms, with the input shorted to ground but the volume control set to "80") was an impressive 85dB, while A-weighting improved this to 102.5dB. This is a very quiet preamp!

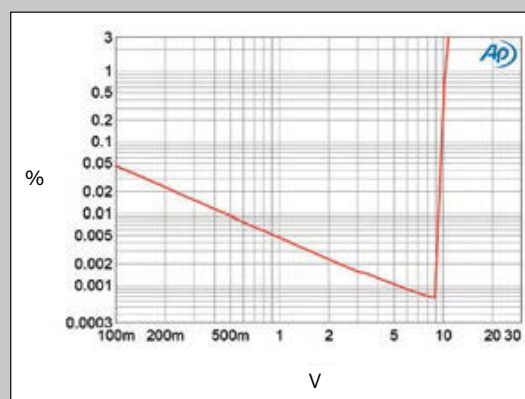
Through its balanced inputs and outputs, the 740P clipped at just over 20V into 100k ohms (fig.3), and at 12V into the punishing 600 ohm load (not shown). For unbalanced operation (fig.4), clipping occurred at just over 10V, which is still well above the voltage required to drive any power amplifier into overload. The fact that in these two graphs the traces slope downward with increasing output voltage indicates that the actual distortion is below the noise floor almost until actual waveform clipping occurs. I therefore examined how the percentage of THD+noise changed with frequency at a very high level, 10V. Even so, the distortion hardly varied with load or frequency (fig.5).

What distortion there was was primarily the third harmonic, at -110dB (0.0003%), with some second harmonic 10dB lower (fig.6). This graph was taken into 100k ohms; reducing the load to 600 ohms increased the third harmonic by 6dB but dropped the second harmonic by 6dB in the left

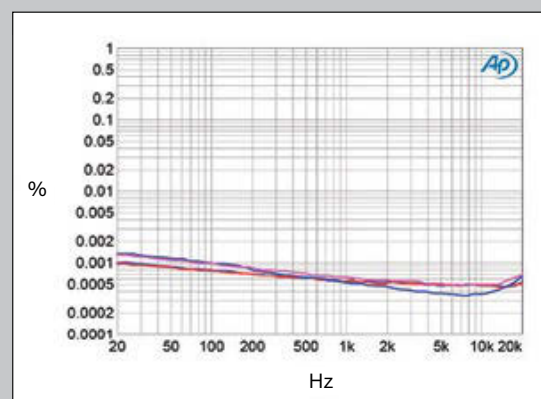
channel, 12dB in the right (not shown). This very low distortion was repeated for unbalanced operation, while intermodulation distortion at a typical

output level was extremely low (fig.7).

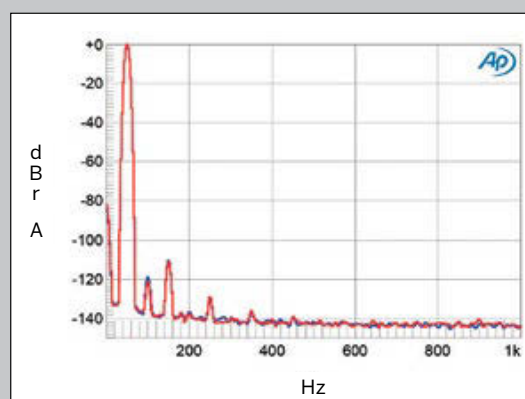
The Moon Evolution 740P's measured performance is beyond reproach.—John Atkinson



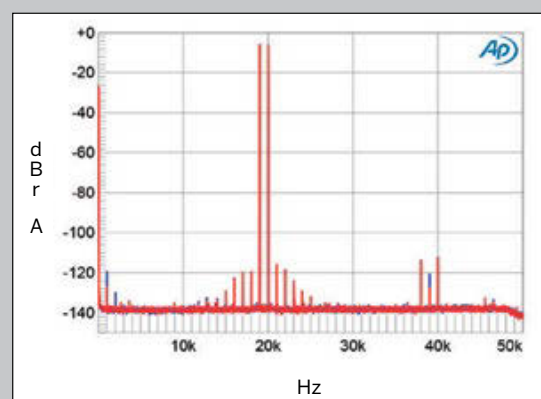
**Fig.4** Simaudio Moon Evolution 740P, unbalanced distortion (%) vs 1kHz output voltage into 100k ohms.



**Fig.5** Simaudio Moon Evolution 740P, balanced distortion (%) vs frequency at 10V into: 100k ohms (left channel blue, right red), 600 ohms (left cyan, right magenta).



**Fig.6** Simaudio Moon Evolution 740P, balanced spectrum of 50Hz sinewave, DC-1kHz, at 5V into 100k ohms (left channel blue, right red) (linear frequency scale).



**Fig.7** Simaudio Moon Evolution 740P, balanced HF intermodulation spectrum, DC-50kHz, 19+20kHz at 2V into 100k ohms (left channel blue, right red) (linear frequency scale).



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the keys and the hammers hitting the strings; the dynamic contrasts in the pressure and release of the pedals; the bouquet of overtones wafting into the air; the resonant vibrations of the piano itself; and the mingling of all these sounds together. To get all of this—and to make it all seem to be coming from the same object in space—demands a lot of a sound engineer and a stereo. A slight discontinuity in frequencies, a slight smearing of time or phase alignment, can mess it up. With the Simaudio 740P, I heard all of it, or at least all that the recording and the rest of my system could parse. I suspect that this, too, has something to do with Simaudio's ways of keeping the low-level signals pure.

Or take Analogue Productions' breathtaking reissue of Duke Ellington's aptly titled *Masterpieces by Ellington*, either the SACD/CD (CAPJ-4418-SA) or, especially, the LP pressed by QRP (APJ-4418). Duke's piano isn't the sonic highlight of this demo-disc jaw-dropper recorded by Columbia in 1950, but I'd never heard it sound so much like a piano, all its elements (percussiveness, tone, overtones, resonances, etc.) emanating from one place at one time.

Speaking of Analogue Productions, on their 45rpm LP reissue of Ella Fitzgerald and Louis Armstrong's wonderful *Ella & Louis* (AP-4003), I'd previously found the rhythm section undermiked; I'd had to strain to hear what the musicians were doing. The 740P whisked away the burlap: the rhythm section still seemed way back there, no question, but I heard every chord Oscar Peterson played (and his piano was all there), along with Buddy Rich's every snare swipe and cymbal tap (and he hit them in rhythm: it turned out they're an integral piece of the music).

Or listen to Don Pullen play "Resting on the Road," from his final album, *Sacred Common Ground* (CD, Blue Note 7 32800 2). I've hauled out this track for many reviews, sometimes to take note of the flesh-inflected hand drum on the right, always to remark on how well the component in question gets Pullen's keyboard virtuosity: his heartbreak hesitations, elbow rumblings, and fiery cross-octave scrambles. But, again, I'd never heard them so heartbreaking, physical, or fiery. At one point, as Pullen chopped through arpeggios the way a skilled chef chops onions, I thought that maybe the 740P wasn't getting it quite right; I remembered this passage sounding louder or fiercer through other systems, including ones of which the 700i had been a part. But swapping out components and listening again, I realized that, with those other systems, I hadn't clearly heard the notes and chords Pullen was playing; the passage may have seemed louder or fiercer because it was muddier. But in no way, with this or any other album, did the 740P ever sound too analytical; its clarity didn't come at the sacrifice of musical warmth.

As I wrote at the beginning, transparency isn't the most important trait in audio. But as I also wrote, transparency can enrich all that's good about a component or a system (and, probably, exaggerate all that's bad about it). In all other ways, the Moon Evolution 740P was terrific. Horns, woodwinds, drums, voices, guitars: all sounded as they should, in terms of tone, color, size, and dimension—or at least as much as a given recording allowed.

As for the 740P's bass, how deep it will go will depend a lot on your speakers. As far down as my Revel Ultima Studio2s go—fairly far, if not to subterranean depths—the 740P conveyed the full character of bass instruments. I never heard mere rumble, as I had from the James Carter album with some earlier systems; the 740P let me know

## ASSOCIATED EQUIPMENT

**Analog Sources** VPI Classic turntable & JMW tonearm, Ortofon Cadenza Blue cartridge.

**Digital Sources** Krell Cipher SACD/CD player.

**Preamplification** Nagra BPS battery-powered phono preamplifier, Pass Labs XP-30 line preamplifier.

**Power Amplifier** Simaudio Moon Evolution 860A.

**Integrated Amplifier** Simaudio Moon Evolution 700i.

**Loudspeakers** Revel Ultima Studio2.

**Cables** Interconnect, Speaker: Nirvana Audio; AC, manufacturer's own.

**Accessories** Bybee Technologies Signature power conditioner (not for power amp, sometimes for other components), Audiodesksysteme Vinyl Cleaner, AC power from dedicated 20A circuits.—Fred Kaplan

(as others had not) that Cyro Baptista's bass drum, heard loud and solo at the start of "Nuages," is banged—or, more often, caressed—*throughout* the song. On *Jasmine*, a lovely duet album by Keith Jarrett and Charlie Haden (CD, ECM 2165), Haden's double bass sounded more present. Though not to the same degree, the sound of the double bass is as complex as the piano's: the snap of the fingers, the pluck of the strings, the vibration of the wood. With the 740P I heard all of this in perfect alignment; it felt almost as if Haden had come back to life, or as if I'd traveled back in time to hear him.

But surely *something* must be wrong with the 740P—or, at least, not completely right?

### Two things

First, in the April 2011 issue, I compared two high-priced, high-powered integrated amps: Simaudio's Moon Evolution 700i and Krell's FBI.<sup>2</sup> The Krell was more adept at handling bass dynamics and the forward edge of transients: the whack of a drum, the pluck of a string, the *sss* of a sibilant. The Simaudio was more agile with the tonal colors of an ensemble or an instrument, the flow of a rhythm, the seamlessness of the audioband from bass through midrange through airiest highs. The Simaudio 740P had this same set of strengths, as well as . . . I won't say *weaknesses* (that would exaggerate it to the point of falseness), but *lesser strengths*. The 740P was remarkably neutral, with a slight tilt toward warmth—which, if there has to be any sort of tilt (and there almost always does), is the tilt I prefer. But these are only general remarks; I no longer have the Krell FBI, so I couldn't make direct comparisons. But I hasten to say that the 740P outperformed the 700i on *all* these fronts.

My second caveat concerns a question of absolutes. After listening to the 740P for a while, I reread JA's review of the Pass Labs XP-30, which he described as something close to the proverbial ideal of a "straight wire with gain." I'd begun to think the same might be true of the 740P, but before I indulged in superlatives, I needed an established world-beater, or something close to it, as a reference. So I borrowed JA's review sample of the XP-30, let it warm up for several days (he'd long ago unplugged it), and listened carefully. It sounded different—maybe leaner—or was I just getting used to it? After

<sup>2</sup> See [www.stereophile.com/content/simaudio-moon-evolution-700i-integrated-amplifier](http://www.stereophile.com/content/simaudio-moon-evolution-700i-integrated-amplifier).



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a couple weeks of listening, I concluded that the XP-30 was a bit better, and certainly more transparent, than the 740P. With the XP-30, the stage went farther back, there was a bit more air between instruments, and the elements of the sounds of complex instruments (eg, pianos, double basses) seemed a bit more cohesive (there seemed to be more elements, just as a higher-bit HDTV has a more comprehensive color palette). All of my observations here about the 740P's see-through, hear-everything wonders? Add another 20% percent or so of clarity and luster for the Pass XP-30.

#### Conclusions

I didn't listen to it long enough or closely enough to the Pass Labs XP-30 to make a definitive judgment on its sound

#### The Moon Evolution 740P definitely ranked high in the league of last words.

dwelled in for very long, and I'll be sad to leave it when I send back the Simaudio Moon Evolution 740P—or should I check my bank balances, gulp hard, and make that: "... if I send it back"? ■

quality. I'd borrowed it just to see if the Simaudio was the last word in transparency. Apparently not, it turned out. However, the 740P costs a lot less—\$9500 *vs* the XP-30's \$16,500 and the Moon Evolution 740P definitely ranked high in the league of last words. It's a league I'd never

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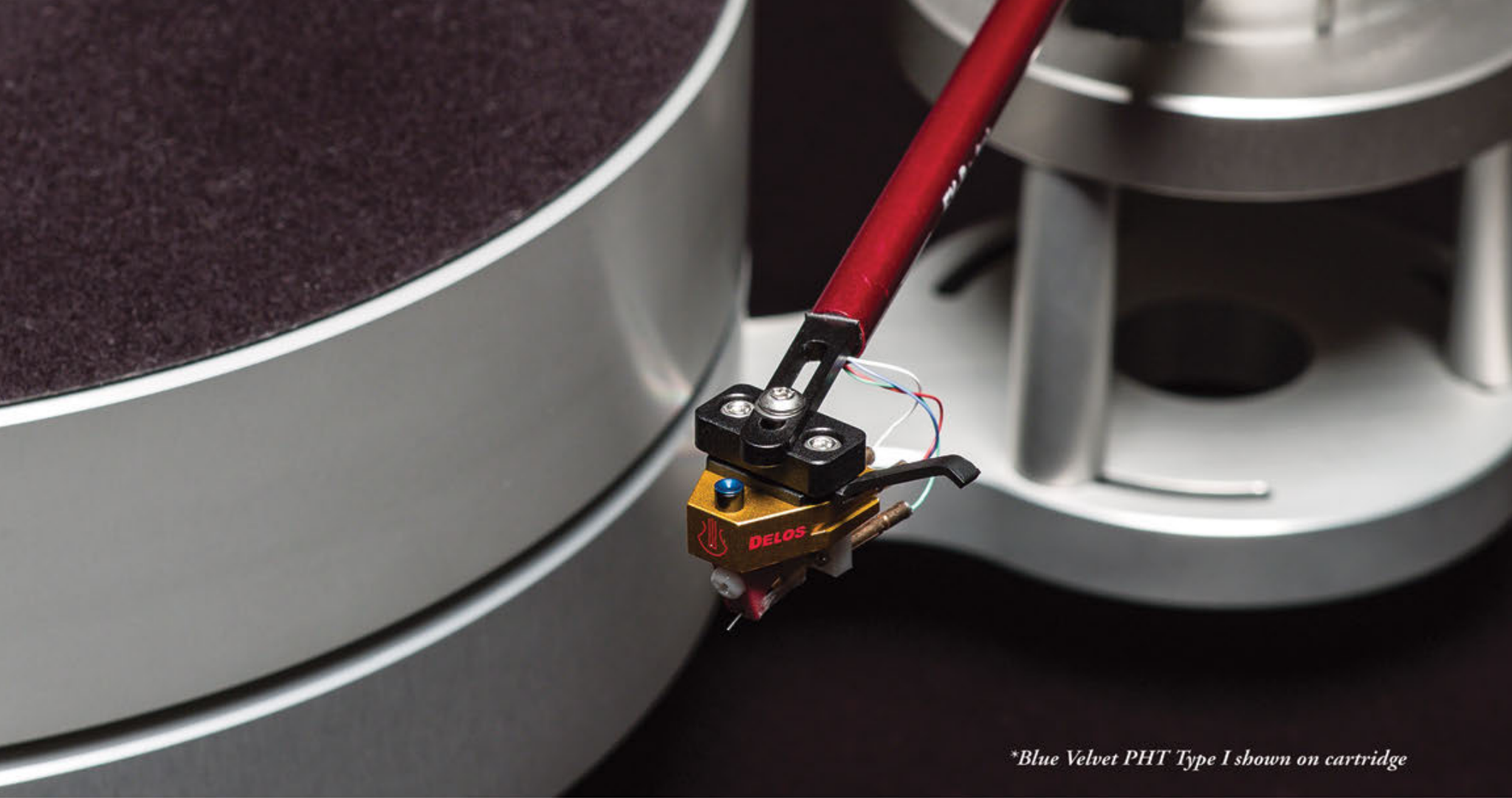
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# FOLLOW-UP

BY ROBERT DEUTSCH & JOHN ATKINSON

**THIS ISSUE:** Further thoughts on the PS Audio DirectStream DAC and NAD D 3020 integrated amplifier.

## PS AUDIO DIRECTSTREAM DAC: PIKES PEAK OPERATING SYSTEM

Although I've been a happy owner of an Ayre Acoustics CX-7e<sup>MP</sup> CD player for five years, I decided last fall that it was time to upgrade my CD playback. My choice was a PS Audio combination of DirectStream DAC and DirectWave Transport. What I found particularly appealing about the DirectStream (DS) was that its data processing is performed by field-programmable gate arrays (FPGAs) rather than by a dedicated chip, and can be upgraded with downloadable firmware that's free to all DS owners.<sup>1</sup>

When I got the DS last fall, it had firmware v.1.1.4, but a few weeks later saw the release of v.1.2.1. According to Paul McGowan, PS Audio's founder and CEO, the new firmware, the work of designer Ted Smith, fixed some technical problems of v.1.1.4 that John Atkinson had identified in his measurements, and represented an overall improvement in sound quality. Having installed firmware v.1.2.1, I noted a deeper, wider soundstage, more three-dimensional images, cleaner bass, and better-defined transients (see my Follow-Up in the February 2015 issue, p.129). In his measurement Follow-Up of the v.1.2.1-equipped DS in the March 2015 issue (p.115), John Atkinson found that, compared to v.1.1.4, both the noise floor and the already low-level power-supply products had dropped by 3–5dB; there were significant improvements in low-level linearity and IM distortion; and there was a “dramatic” drop in low-frequency harmonic distortion.<sup>2</sup>

With v.1.2.1 installed, the performance of the DS was such that I wondered if, like Kansas City, they'd gone about as far as they can go. If there was to be another update, I figured it wouldn't be for at least another year.

But less than four months after the release of v.1.2.1, there's new firmware. Paul McGowan has been thinking about what these updates involve, and decided that, rather than referring to them as just updates of the “firmware,” they would be more accurately described as updates of the DAC's operating system (OS), analogous to a new version of Windows. For this latest firmware—excuse me, OS—PS Audio abandoned the numerical designation, naming the new OS Pikes Peak. (PS Audio is based in Boulder,



Colorado; I guess they're entitled to use the name of this famous Colorado mountain.)

Downloading and installing Pikes Peak caught me in the middle of a speaker review: a Follow-Up of the Fujitsu Eclipse TD712z, now in Mk.2 designation. Fortunately, I'd been listening to the Eclipse TD712z Mk.2 for several weeks, so I had a pretty good handle on its sound.

Or so I thought. Installing the Pikes Peak OS seemed to transform the Eclipse's sound: more dynamic, better bass, more extended treble, even better soundstaging (already one of this speaker's great strengths). I won't say much more about the Fujitsu—I have to leave something for *its* review—but keep in mind that, like the original Eclipse TD712z, the Mk.2 has only a single 120mm driver—it's not capable of the sort of volume you can get from something like the GoldenEar Triton 1. But with the DS updated with the Pikes Peak OS, the sound was decidedly more dynamic, almost as if the volume had been turned up.

I measured the output of my McIntosh MC275LE power amplifier at the speaker terminals, using the 1kHz tone on the first *Stereophile* Test CD, and compared the Pikes Peak OS with the v.1.2.1: the voltmeter readings were identical to the third decimal

**Less than four months after the release of v.1.2.1, there's new firmware for the Directstream DAC.**

place. The DS with Pikes Peak OS somehow allowed the speakers to sound subjectively louder and more dynamic without increasing the gain.

The first CD I played through Pikes Peak was Simon and Garfunkel's *Bridge Over Troubled Water*, and while it had the enhanced dynamics and soundstaging that I found most appealing with v.1.2.1, Art Garfunkel's sibilants were more prominent than I'd been used to. I played a bunch of familiar records, trying to assess whether what I was hearing represented just higher resolution (definitely a characteristic of Pikes Peak), or higher resolution combined with some treble emphasis. As I continued listening, it seemed that whatever treble emphasis had been present at first was gradually disappearing. When I played *Bridge Over Troubled Water* two days later, the sibilant emphasis was *gone*, leaving behind an extended but smooth treble—apparently, a result of break-in. Switching back to v.1.2.1 (and allowing for suitable warmup), the sound was

<sup>1</sup> The PS Audio PerfectWave DirectStream DAC costs \$5999. PS Audio, 4826 Sterling Drive, Boulder, CO 80301. Tel: (720) 406-8946. Web: [www.psaudio.com](http://www.psaudio.com).

<sup>2</sup> All of our coverage of the PS DirectStream, including Art Dudley's original review, can be found at [www.stereophile.com/content/ps-audio-perfect-wave-directstream-da-processor](http://www.stereophile.com/content/ps-audio-perfect-wave-directstream-da-processor).



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a bit softer, more laid-back, not quite as dynamic. I very much preferred the sound through Pikes Peak, but I can imagine that some people whose systems are on the borderline of being too bright might prefer v.1.2.1. Both are available from PS Audio's website.

What, precisely, are the technical differences between Pikes Peak and v.1.2.1? According to McGowan, they involve: a) a wider acceptance window for incoming data to improve compatibility with sources, including changes in the input architecture; b) redistribution of FPGA resources; and c) improvements in layout and data

paths within the FPGA. McGowan continued: "The DirectStream operating system consists of two main bits of architecture: the FPGA and the Microcontroller. Each subsystem is written first in high-level code, then compiled into machine language. The compiling process has an impact on the sonic qualities of the final operating system, and both compilations must be matched to each other for best sound. Orchestrating this process, which sometimes requires each of the programmers to rewrite aspects of their code, is Arnie Nudell's task, a job taking several weeks of listening to

pull off."

That explanation is way over my head. What I take away from it is that refinements of the DS operating system involve thorough technical understanding, hard work, and attention to detail, with listening providing the final arbitration. My system does not include DSD or other high-resolution sources, so I can't say what Pikes Peak might do for them—but CDs played through the PS Audio DirectStream DAC equipped with the Pikes Peak OS sound so good that I'm not about to rush into hi-rez.

—Robert Deutsch

### NAD D 3020 INTEGRATED AMPLIFIER

As Stephen Mejias wrote in our November 2013 issue, NAD's original 3020, introduced in 1978, was one of the best-selling integrated amplifiers of all time, with over a million units sold worldwide. The 3020 was modest looking and modestly powered (20Wpc), but, as retailer Robert Saglio summed it up for SM, "it was understated and underspecced and it overperformed."

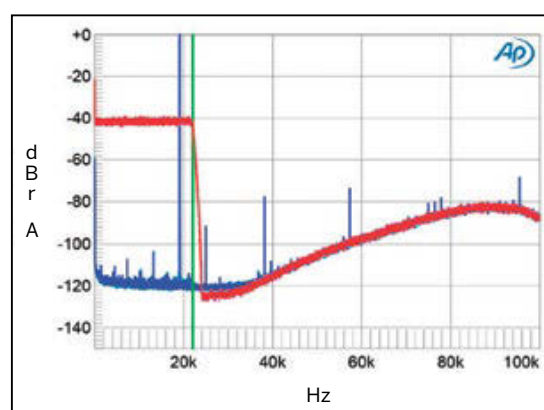
So when NAD revived the model number with the D 3020, a book-sized integrated amplifier designed to stand on end and priced at \$499,<sup>3</sup> they were, in effect, making major claims about its performance. Unlike its ancestor, the D 3020 offers a complete suite of digital inputs—electrical and optical S/PDIF, USB, Bluetooth—as well as line-level analog, but dispenses with a phono stage. Fortunately, both SM and Sam Tellig were impressed by the new 3020. Hooking it up to a pair of KEF LS50 speakers (\$1499/pair) and turning the volume up high, SM wrote: "I was bowled over by the sound, which easily matched the best I'd ever heard at home."<sup>4</sup> ST, too, was impressed, writing in December 2013 that "NAD's D 3020 is the best bargain in all of hi-fi." The D 3020 was voted *Stereophile's* "Budget Component of 2014."<sup>5</sup>

Getting the review sample onto my test bench had been on my to-do list for way too long, but I was reminded of the unfinished task when I picked up the PS Audio Sprout for measurement from Herb Reichert, whose review of the latter appears elsewhere in this issue. I first checked the performance of the D 3020's digital inputs, looking at the signal from the headphone



output jack with my Audio Precision SYS2722 system (see [www.ap.com](http://www.ap.com), and the January 2008 "As We See It" at [www.stereophile.com/content/measurements-maps-precision](http://www.stereophile.com/content/measurements-maps-precision)).

The headphone output preserved absolute polarity for both analog and digital input signals, and the output impedance was on the high side, at 200 ohms at all audio frequencies.



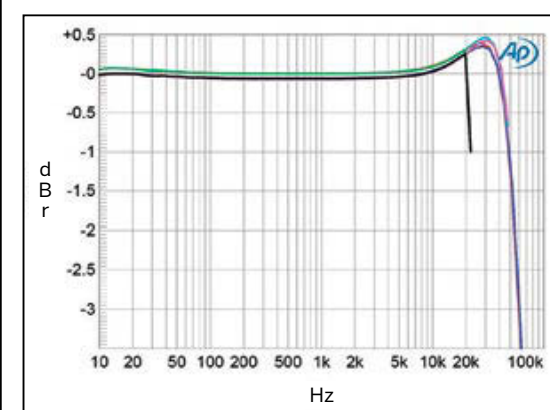
**Fig.1** NAD D 3020, headphone output, wideband spectrum of white noise at -4dBFS (left channel red, right magenta) and 19.1kHz tone at 0dBFS (left blue, right cyan), with USB data sampled at 44.1kHz (20dB/vertical div.).

For analog input signals, the D 3020's headphone output offers a maximum gain of 28.6dB, but a digital signal with a level of -12dBFS clipped the headphone output with the volume control set to its maximum. At -14dBFS, the unclipped output level was 6.81V; so, except as noted, for the digital-input measurements I reduced the volume-control setting, to avoid clipping. The D 3020 locked to an S/PDIF datastream with sample rates up to 192kHz, even via TosLink, though the USB input was restricted to 96kHz and below. Apple's USB Prober utility identified the D 3020 as "NAD USB Audio" with the serial-number string "(C) 2011 Wavelength Audio, ltd." This implies that the D 3020 uses Gordon Rankin's "Streamlength" asynchronous USB protocol and USB Prober did indeed confirm that the

3 NAD Electronics International, 633 Granite Court, Pickering, Ontario L1W 3K1, Canada. Tel: (905) 831-6555. Web: [www.nadelectronics.com](http://www.nadelectronics.com). The review sample's serial number was H37D3020G01017.

4 See [www.stereophile.com/content/entry-level-35](http://www.stereophile.com/content/entry-level-35).

5 See [www.stereophile.com/content/stereophiles-products-2014-budget-component-year](http://www.stereophile.com/content/stereophiles-products-2014-budget-component-year).



**Fig.2** NAD D 3020, headphone output, frequency response at -12dBFS into 100k ohms with data sampled at: 44.1kHz (left channel green, right gray), 96kHz (left cyan, right magenta), 192kHz (left blue, right red) (0.5dB/vertical div.).



# Our 5th Anniversary!!!

## What it means for you...

### Dear Reader,

It's been a great ride. Frankly speaking, it's hard for me to believe that it was five years ago (!) that *Get Better Sound* was first released.

Since that time, tens of thousands of audiophiles have made a significant improvement in the way their systems sound.

How do I know? It's all the wonderful e-mails and calls that I get every day from satisfied owners wishing to share their experiences.

### Why the response?

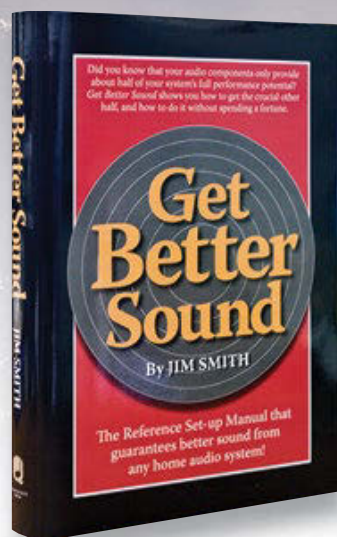
From what I can tell, it's because the *GBS* book and DVDs are approachable and accessible. As are the free *Quarter Notes* newsletters—already equivalent in size and scope to another book—that come with the purchase.

Of course, none of that would be possible if the tips in *GBS* didn't actually work!

And here's the other thing that amazes me. Folks seem to be genuinely surprised that I answer their e-mails promptly. Who knew that basic courtesy would be held in such high regard?

### No more incomplete advice

It saddens me that there is so much misinformation out there, especially on the Internet.



Here's an example—most audiophiles have adopted some set-up guide or other. There are lots of them available from various manufacturers. Interestingly, they ALL differ in concept and execution. But which one is correct? In my experience, they all have a portion of the

truth, but none have the whole picture. It's incomplete.

If you ignore almost all of the 202 tips in *Get Better Sound*, and you only focus on set-up tips #59-89 in the book, and/or on Disc 2 in the 3-disc DVD set, you could lift your system's performance substantially. It's not rocket science. It just requires a little commitment on your part.

### The 10% rule

Another partial truth is related to various so-called rules—such as the “rule of thirds.”

I've voiced countless systems that were set up with one of the set-up guides, or according to one of the “rules.” In every case, we were able to dramatically elevate the performance of each system—simply by using the proven basic information from *GBS*.

So I, with a little help from my clients, have developed the 10% rule. Any changes you might get from new electronics or cables—at any price—will equal perhaps 10% of what the

improvement would be by simply applying the tips found in *Get Better Sound*!

### Celebration pricing

Guess I never thought about having a 5th anniversary sale. The *GBS* manual's regular price is \$44.50, but during the Celebration Sale, it's just \$29.80. Get similar savings on the DVD set, and save even more when they are purchased at the same time!

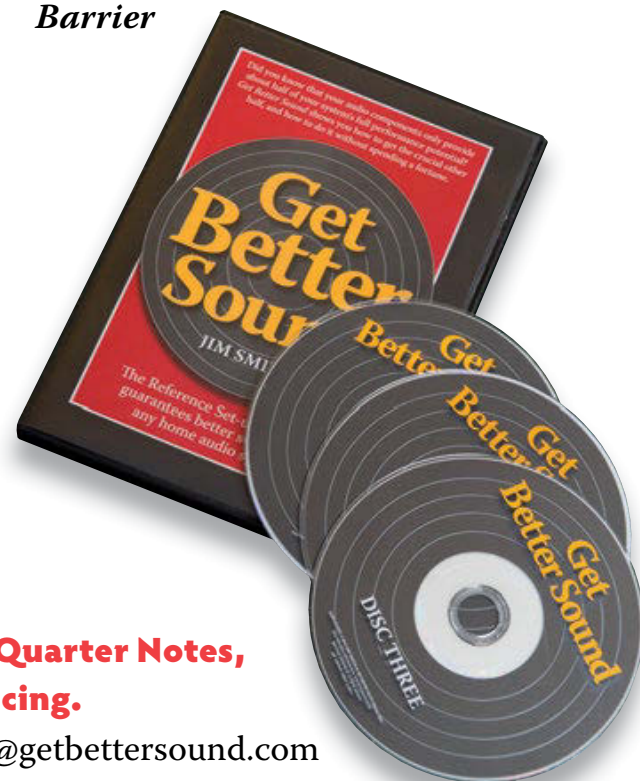
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Best regards,

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USB input operated in the optimal isochronous asynchronous mode.

The reconstruction filter's impulse response (not shown) was a conventional FIR type, with time-symmetrical ringing, while wideband spectral analysis of the analog output as the NAD decoded 44.1kHz data representing white noise at -4dBFS (fig.1, magenta and red traces) indicated that the response rolled off quickly above half the sample rate (vertical green line). The sampling image at 25kHz of a full-scale tone at 19.1kHz (cyan, blue) was suppressed by more than 90dB. Note the rise in the ultrasonic noise floor in fig.1, suggesting that the D 3020's DAC stage uses some kind of sigma-delta upsampling. Fig.2 is a more conventional response measurement, taken with 44.1, 96, and 192kHz data. The overall shape of the response at ultrasonic frequencies is the same—a small, 0.4dB rise above the audioband—broken by a sharp rolloff just below 22 and 47kHz with the two lower rates.

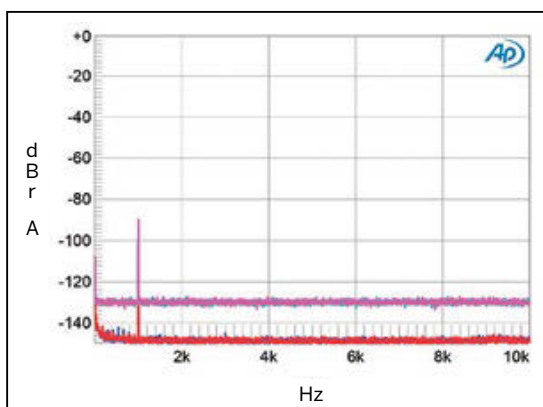
To assess the D 3020's digital resolution, I set the volume control to its maximum, an unrealistic situation that did allow me to examine by how many dB the noise floor dropped when I changed from 16-bit data representing a dithered 1kHz tone at -90dBFS to 24-bit data. Fig.3 shows that the noise floor dropped by almost 20dB, indicating ultimate resolution of better than 19 bits—superb performance, even without taking into account the D 3020's very affordable price. The NAD's reproduction of an undithered 16-bit, 1kHz sinewave at exactly -90.31dBFS (fig.4) was essentially perfect, with the three DC voltage levels described by the data easily visible. With undithered 24-bit data, the result was a superbly well-defined sinewave (not shown).

Only when it came to jitter did I encounter some anomalous behavior via the D 3020's digital inputs. Fig.5 shows the spectrum of the headphone output with 24-bit J-Test data fed to the D 3020's USB input. No sidebands are visible around the 11.025kHz tone, and the noise floor is superbly clean. By contrast, fig.6 shows the spectrum of the analog output with the same data fed to the optical S/PDIF input. Some sidebands of unknown origin are visible, and the noise floor now has a peculiar sculpted appearance. This modulation of the noise floor was not

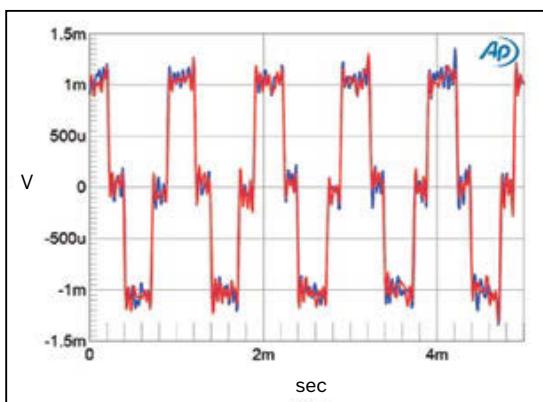
## The NAD D 3020, as its name implies, is a class-D design.

apparent with the 19.1kHz tone in fig.1, which was taken with USB data. Repeating that test with S/PDIF data, I got a similar noise-floor modulation to that seen in fig.6.

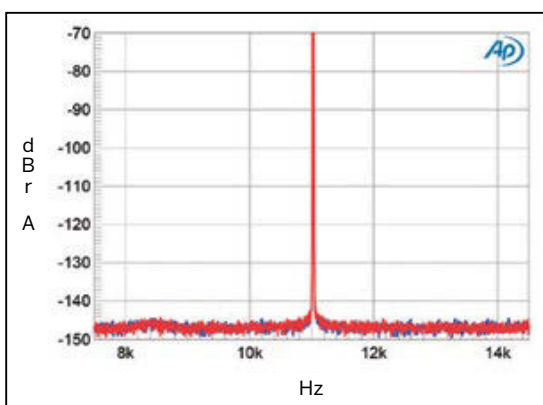
Whereas the original 3020 used a conventional output stage, based on a complementary pair of 2N2055/MJ2955 bipolar transistors, the D



**Fig.3** NAD D 3020, headphone output, spectrum with noise and spurs of dithered 1kHz tone at -90dBFS with: 16-bit data (left channel cyan, right magenta), 24-bit data (left blue, right red) (20dB/vertical div.).

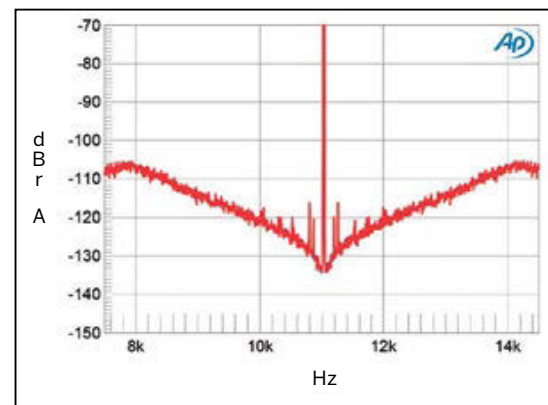


**Fig.4** NAD D 3020, headphone output, waveform of undithered 1kHz sinewave at -90.31dBFS, 16-bit data (left channel blue, right red).

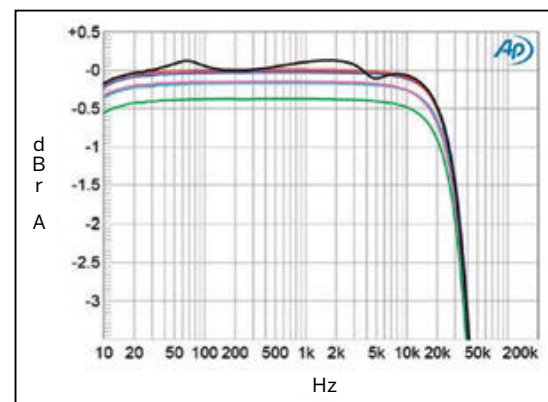


**Fig.5** NAD D 3020, headphone output, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: 24-bit data from MacBook Pro via USB (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range,  $\pm 3.5$ kHz.

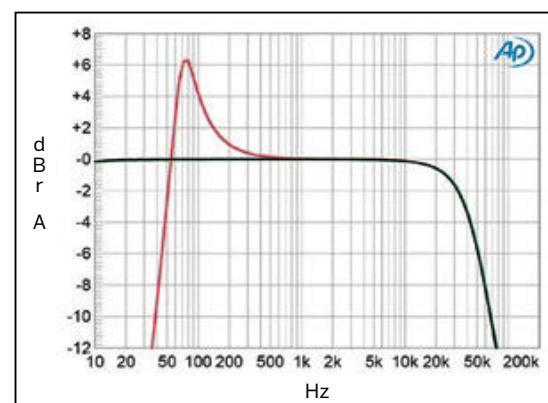
3020, as its name implies, is a class-D design, and so produces ultrasonic noise that would overload the Audio Precision's input circuitry. I therefore performed most of the tests of the D 3020 as a power amplifier using, ahead of the analyzer, an Audio Precision AUX-0025 passive low-pass filter (see <http://ap.com/products/accessories/aux0100>), which eliminates noise above 200kHz. (Without the filter and with no signal, there was 140mV of ultrasonic noise with a center



**Fig.6** NAD D 3020, headphone output, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: 24-bit data from MacBook Pro via TosLink (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range,  $\pm 3.5$ kHz.



**Fig.7** NAD D 3020, volume control set to maximum, frequency response at 2.83V into: simulated loudspeaker load (gray), 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta), 2 ohms (green) (0.5dB/vertical div.).



**Fig.8** NAD D 3020, volume control set to -20dB, frequency response at 2.83V into 8 ohms with Bass EQ activated (left channel blue, right red) and inactive (left green, right gray) (2dB/vertical div.).



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frequency around 485kHz present at the NAD's speaker terminals.)

Assessed at the speaker outputs, the D 3020 offered a modest maximum gain for line-level sources of 33.8dB and was non-inverting. The input impedance ranged from 14.3k ohms at 20Hz to 11k ohms at 20kHz; the output impedance was around 0.15 ohm at all audio frequencies, resulting in a modulation of the amplifier's frequency response of less than  $\pm 0.15$ dB with our standard simulated loudspeaker (fig.7, gray trace). The response was  $-0.5$ dB at 20kHz, above which it rolled off sharply. (The headphone output was flat to 200kHz.) Commendably, the response didn't change at different volume-control settings, and switching the Bass equalization into circuit gave a boost of just over 6dB, centered between 70 and 80Hz, with a sharp rolloff below that region (fig.8). The D 3020's reproduction of a 10kHz squarewave with the Audio Precision low-pass filter in circuit was well defined, with just the slightest hint of overshoot on the leading edges (fig.9).

Channel separation was  $>80$ dB in both directions below 1kHz, while the unweighted, wideband signal/noise ratio, ref. 1W into 8 ohms and taken with the volume control set to its maximum, but the input shorted and with the AP filter in-circuit, was an excellent 80.2dB; this improved to 91.3dB when A-weighted.

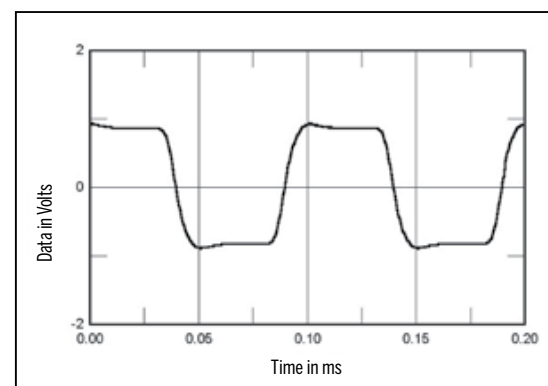
Figs. 10 and 11 show how the percentage of THD+noise in the NAD's output changed with output power into 8 and 4 ohms, respectively. The minimum distortion level was low, and the D 3020 clipped (defined as when the THD+N reaches 1%) at 58Wpc into 8 ohms (17.6dBW) and 68Wpc into 4 ohms (15.3dBW). These two graphs reveal that the actual distortion is buried beneath the noise floor at levels below a few watts. I therefore examined how the THD+N percentage changed with frequency at 9V, equivalent to 10Wpc into 8 ohms or 20Wpc into 4 ohms. The result (fig.12) revealed no change in the distortion at different frequencies, a commendable result.

The distortion at lower powers was primarily the third harmonic (fig.13), with the second harmonic becoming predominant at higher powers (fig.14), though lower-level, higher-order harmonics are also present. Intermodulation distortion was also

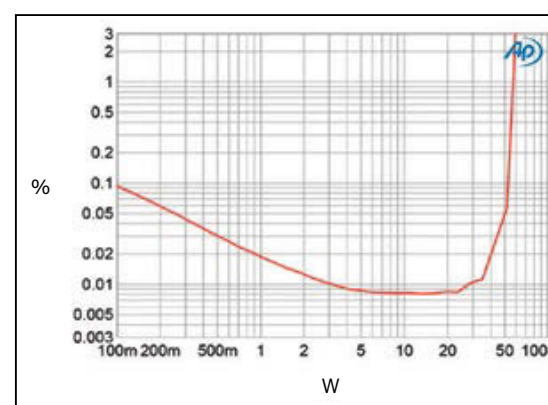
low, even at a level a few dB below visible waveform clipping (fig.15).

I was impressed by the NAD D 3020's technical performance. It packs a usefully powerful amplifier into a tiny package, and offers digital performance that is close to the state of the art, though its USB input is to be preferred. In fact, the only problems I had with this little gem was that the touch switch on its top panel, for bringing the amplifier out of and into standby, didn't always respond. And the first time I tried disabling the Bass boost with the tiny rear-panel pushbutton, the D 3020 locked up and wouldn't respond to any commands, necessitating a hard reboot.

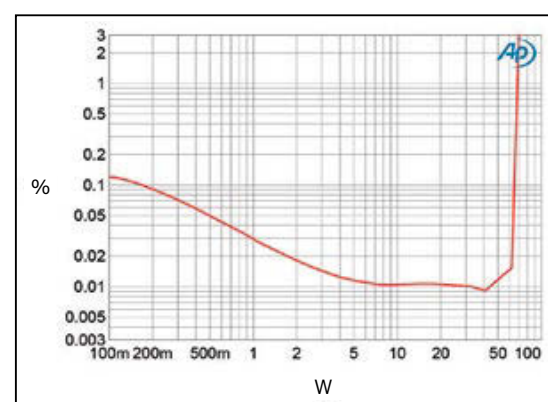
Stephen Mejias concluded his original review of the D 3020 by asking, "Will [the D 3020] be the component that introduces a new



**Fig.9** NAD D 3020, small-signal, 1kHz squarewave into 8 ohms.

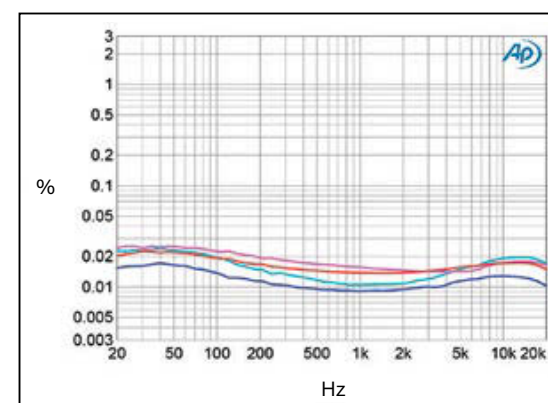


**Fig.10** NAD D 3020, distortion (%) vs 1kHz continuous output power into 8 ohms.

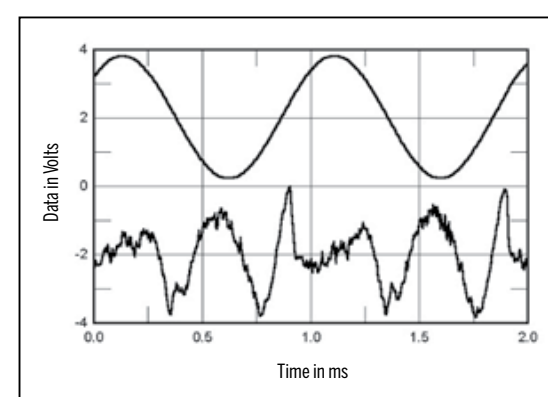


**Fig.11** NAD D 3020, distortion (%) vs 1kHz continuous output power into 4 ohms.

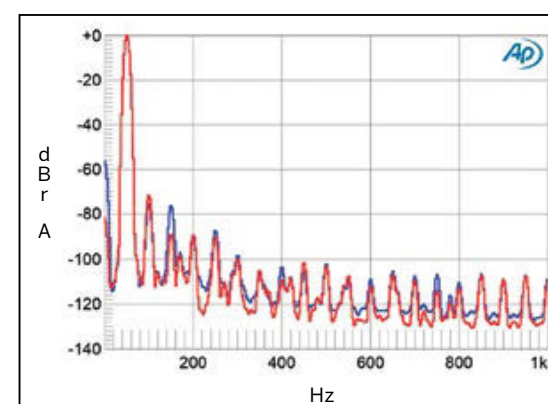
generation of music lovers to true high-fidelity sound?" I'd like to think that the answer to that question is "Yes!" —John Atkinson ■



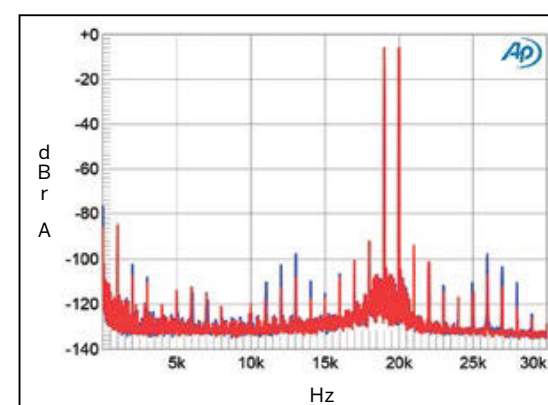
**Fig.12** NAD D 3020, THD+N (%) vs frequency at 9V into: 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta).



**Fig.13** NAD D 3020, 1kHz waveform at 10W into 4 ohms, 0.014% THD+N (top); distortion and noise waveform with fundamental notched out (bottom, not to scale).



**Fig.14** NAD D 3020, spectrum of 50Hz sine wave, DC-1kHz, at 35W into 4 ohms (linear frequency scale).



**Fig.15** NAD D 3020, HF intermodulation spectrum, DC-30kHz, 19+20kHz at 23W peak into 8 ohms (linear frequency scale).





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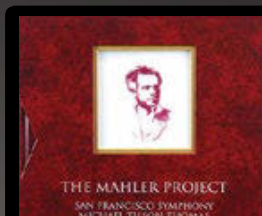
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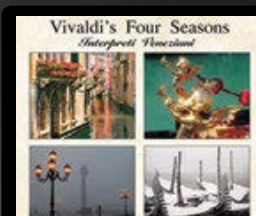
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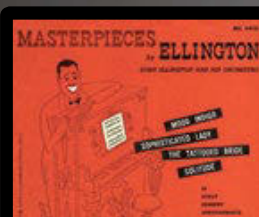
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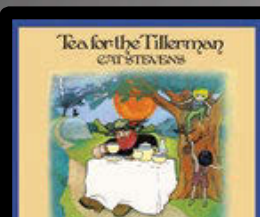
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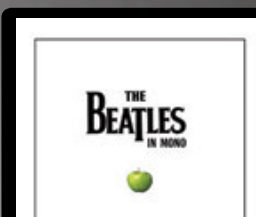
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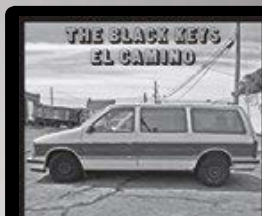
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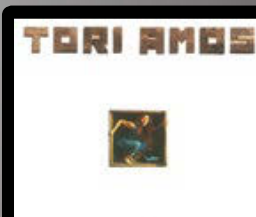
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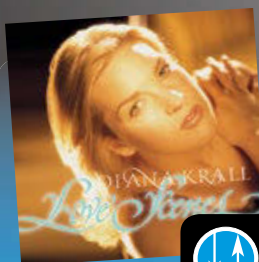
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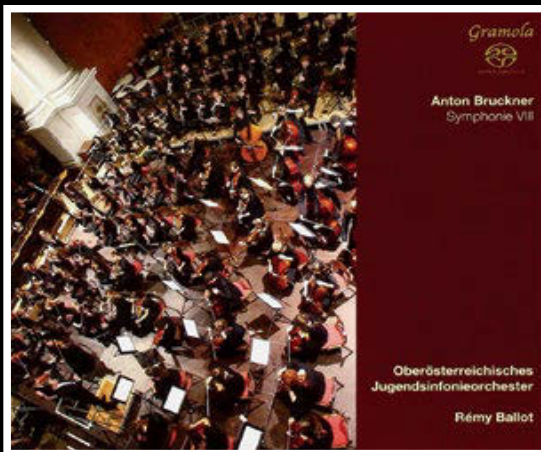
# RECORD REVIEWS

**T**his performance of Bruckner's greatest, most generous work, his Symphony 8, took place last August in the basilica of St. Florian, the Austrian monastery where Bruckner was schooled and served as organist. It was taped before an audience, directly above the crypt in which Bruckner is buried. The band was the Upper Austrian Youth Symphony Orchestra: 130 players, average age 17, conducted by Rémy Ballot, a student of the late Sergiù Celibidache.

Serge Ioan Celibidache paraphrased his father: "the more notes . . . the more time needed for them to develop and to be 'digested' acoustically. Thus, the richer the music, the slower the tempo." This is some of the richest music ever composed. Add St. Florian's reverberation time of six seconds, and this performance of the *shortest* edition of this work—Bruckner's much-cut version of 1890—lasts 103 minutes, exceeding Celibidache's own by one minute. The very special results make clear just how much Ballot learned from his teacher.

Even at such a pace, nothing here is self-indulgent or inchoate. Ballot's taste is impeccable: each phrase is beautifully shaped, and the rhythmic pulse, however slow, never falters. The proportions of the tempos—from slow to very slow to almost static—are meticulously measured, as well balanced as the various sections of this vast ensemble. The deep structures of Bruckner's daunting counterpoint—even harder to play so slowly—are made clear. The brass sound like gold, liquid and molten and airy all at once, their choirs seeming to emerge from the basilica's stones from far, far away, their substance, tone, and heft mysteriously undiminished. Before each of Bruckner's long caesuras, particularly in the *Adagio*, Ballot waits until the music has died *entirely* away before beginning to hold the pause. These silences can be of such terrifying length that one wonders how or if the music will resume.

## EDITOR'S PICK RECORDING OF THE MONTH



### BRUCKNER Symphony 8

Rémy Ballot, Upper Austrian Youth Symphony Orchestra  
Gramola 99054 (2 SACD/CDs). 2015.  
John Proffitt, prod., eng.; Richard Winter, prod.;  
Rémy Ballot, Matthias Kronsteiner,  
eds., mastering. DDD. TT: 103:44

PERFORMANCE ★★★★★

SONICS ★★★★★

Then, with tectonic inevitability, it does. These caesuras have never carried so much musical meaning, or pulsed with more life and vitality. Never has silence been so thrilling.

Nor has this immense, dark work ever sounded more like a long, lingering caress—or, in the case of the perfectly measured *Totenuhr* (deathwatch) that closes the first movement, without ritard even in the final bar, more like last dying breaths. Ballot's refusal to indulge in unscored decelerations or accelerations evinces a deep trust in the score. Even the shortest movement, the *Scherzo*, becomes, at 18 minutes, a world of its own. Its Trio is languid, dreamlike, rapt, with the tenderest imaginable playing from the horns. The string playing is fully fleshed, ardent, despite some rough ensemble work and inadvertent portamenti in the da capo—this is not the Berlin Phil-

harmonic. But that so many people so young could play so difficult a work so beautifully together in so challenging a venue strikes me as almost miraculous.

Miracles manifest most often in the winds, but each section has its moments. The many exposed lines for solo flute, oboe, and clarinet are so extended, so delicately negotiated, that each becomes a small, hushed meditation. The string chords at the beginning of the 33½-minute *Adagio* pulse whale-heart slow. If the solo horn call linking the first and second subjects has been more gracefully played, I haven't heard it. The chorale for harp and diaphanous strings descends like an angel's feather drifting slowly earthward. Midway through the *Finale*, the grand, doomed, fanfaric reprise in low brass of the first subject's second half will melt hearts colder than mine. My prose purples. This is the most transcendent, most sensual, most moving performance of this work I have heard.

In the two-channel DSD tracks the strings have a lushness, and luminescent highs, that seem to celebrate their own beauty without narcissism: There is none of the harshness of even the best 16/44.1 sound, only sweetness and audible light. The 16/44.1 tracks evince a bit more bite in the strings and less ambience (which some will prefer, though not I), and give the orchestra a sound more German (darker, thicker), less Austrian (lighter, warmer, sweeter)—less a loss of resolution than a matter of aural taste. I lack a multichannel system; if you have one, you no doubt have a treat in store from these discs' surround tracks.

This may not be the best performance of Bruckner's Eighth, but it has become the one I most cherish, because it is the one that most cherishes the music. More than any other, it takes me where I want to go when I listen to Bruckner. If music so rich needs to be listened to as slowly as possible, well, with this recording, it can be. —Richard Lehnert ■



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## CLASSICAL



**HAYDN**  
Symphonies 57, 67, 68

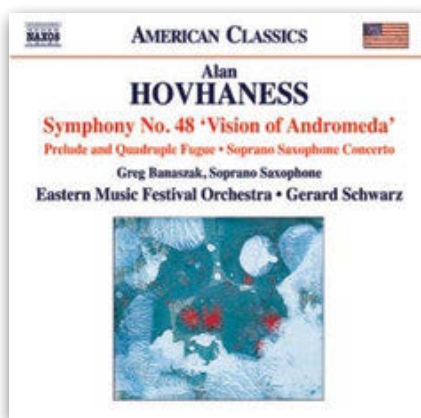
Nicholas McGegan, Philharmonia Baroque Orchestra  
Philharmonia Baroque PBP-08 (CD). 2014.  
David v.R. Bowles, prod., eng.; DDD. TT: 78:29

**PERFORMANCE** ★★★★★

**SONICS** ★★★★★

Haydn's symphonies are invariably formal in structure; that doesn't mean they don't include surprises galore. Symphony 57 opens with a slow stutter of creepy grace notes; the graceful, understated *Adagio* starts gently with low pizzicato strings, then presents a series of four variations of a melody; the low pizzicatos return when least expected. Symphony 67 begins quickly with a jumpy theme that seems not only simple but simple-minded; its development has all the jolliness of a tally-ho experience—in the movement's last 10 seconds, hunting horns ring out. The *Adagio* is a quiet, start-stop-start affair, at the end of which Haydn has the strings play with the backs of their bows. And the tiny *Menuetto* has a truly haunted-house minute in which two muted violins do something very strange. Symphony 68 opens with a perky-peppy movement; the *Menuetto* could be a cliché filled with periwigs, but the winds and the strange use of dynamics and rhythm keep stopping it from being such. The long slow movement is fantastic—an easy theme on violins is ordinary enough, but a loud *tick-tock-tick-tock* from the lower strings keeps interrupting it; the four-note intrusion pops up in all sorts of instrumental combinations, you never quite know when. The final movement, a quick rondo, gives solos to the bassoons and oboes.

McGegan and his 37-piece band play this music like a group that's been together forever, and boy, do they love making music. One wishes for a bit more bass, but the sound is crystal clear.—Robert Levine



**HOVHANESS**  
Orchestral Music

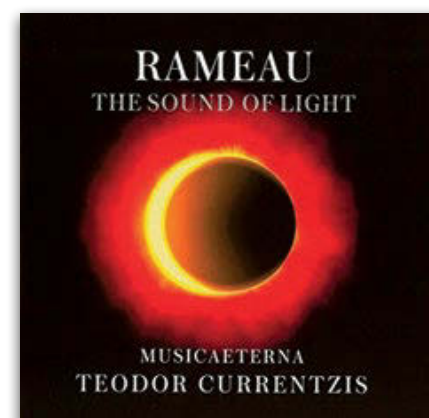
Symphony 48, "Vision of Andromeda"; Prelude and Quadruple Fugue; Soprano Saxophone Concerto  
Greg Banaszak, soprano saxophone; Eastern Music Festival Orchestra, Gerard Schwarz  
Naxos 8.559755 (CD). 2014. Evan Richey, prod., eng.; Gerard Schwarz, prod. DDD. TT: 55:48

**PERFORMANCE** ★★★★★

**SONICS** ★★★★★

It's a pity that the music of Alan Hovhaness (1911–2000) is so beautiful and so accessible; it makes people underestimate it. For years, I accused it of being music to accompany travelogues or worse. That's not to mention his amazing productivity: 67 symphonies and over 350 other works. Listening carefully, one is first enchanted, then more and more impressed by his refusal to compose anything dissonant, by his remarkable orchestrations, his love of nature and the universe, and, indeed, his craft. The seven-minute Prelude and Quadruple Fugue that opens this CD is masterful—an ideal example of contrapuntal writing that one can follow from start to finish, and that gains power as it whirls to its conclusion.

The Soprano Saxophone Concerto is gorgeous: the middle movement is a smooth, exquisite melody, the finale an exotic bird, with strings swirling about and the sax's full range explored. Greg Banaszak is the fine soloist. And Symphony 48, "Vision of Andromeda," practically a hallucinatory/descriptive poem to the galaxy we've all seen in a planetarium or even with the naked eye, is properly phantasmagoric. Dark strings and bells highlight the opening; the brief *Adagio* is a swirling fugue in march/dance rhythm with mad percussion; the Asian-tinged third movement uses the bassoon as a snake-charming voice, and the grand-scaled finale, opening with pealing bells and exquisite string chorales, features a fugue mid-movement before blasting off into space with a gamelan combination of sounds. If anything sounds like the sky, this is it.—Robert Levine



**RAMEAU**  
The Sound of Light

Excerpts from *Castor et Pollux*, *Les Boréades*, *Les Indes galantes*, *Naïs*, *Platée*, *Zoroastre*, others  
Teodor Currentzis, MusicaAeterna  
Sony Classical 88875 01450 2 (CD). 2014. Nicolas Bartholomée, prod. DDD. TT: 67:00

**PERFORMANCE** ★★★★★

**SONICS** ★★★★★

At the first sounds of the droning hurdy-gurdy and dark strings that open this CD, devout Ramellians will run as if from a burning house—until, perhaps, they listen for a second or third time. The startlingly pretentious and sure-of-himself conductor (who says such things as "Rameau is the driver of Apollo's chariot"), Teodor Currentzis, has been given—artistically, at least—the city of Perm, in Siberia. His band and chorus, MusicaAeterna, is his invention and, possibly, cult—they all live together and work around the clock, sometimes in 14-hour sessions.

I describe their working and living conditions because they seem integral to the way they make music: their precision, insane attention to detail, and eccentric choices in tempi and dynamics make the Berlin Phil sound like a pickup band. They weirdly join together a transcription of a jumpy piece depicting a chicken (a transcription from harpsichord) with a 25-second dissonant, madly crescendoing chord for harpsichord and strings and with Folly's sarcastic, loony, pyrotechnically staggering aria from *Platée*, sung with shockingly pure pitch and accuracy—and absolutely no vibrato—by soprano Nadine Koutcher. Exact contrast is achieved later in the funeral music and monologue for Telaira, following Castor's death in *Castor et Pollux*, taken more slowly than, I imagine, it has ever been played before, and ravishly sung.

Yes, the extremes are egocentric and peculiar, but this exquisitely engineered CD (Currentzis loves percussion) is a fabulous, brave achievement, if a bit nuts.—Robert Levine



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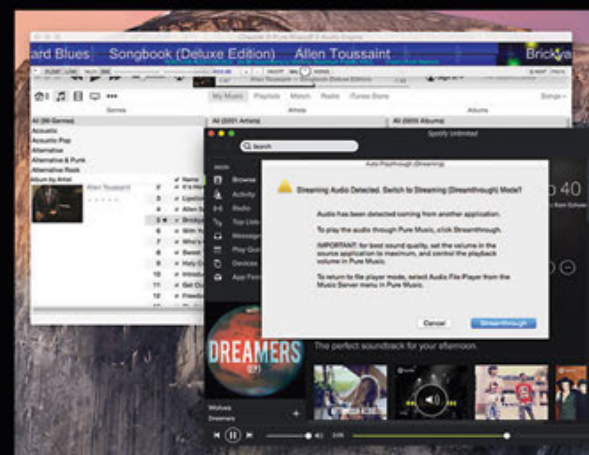
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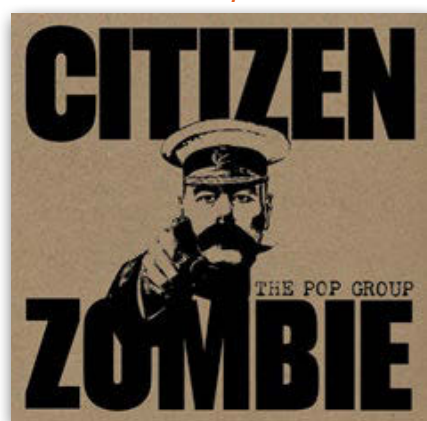
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## ROCK/POP


**THE POP GROUP**  
*Citizen Zombie*

Freaks R Us Freak9 (CD). 2015. Paul Epworth, prod.; Matt Wiggins, eng. AAD? TT: 39:58

**PERFORMANCE** ★★★★★  
**SONICS** ★★★★★

If you were even a casual fan of UK post-punk *ca* 1979–80, you were aware of Bristol's Pop Group, a part combo, part collective into dub, funk, free jazz, and punk. Their phenomenal debut 45, "She Is Beyond Good and Evil" (1979), wedded existential poetry and nihilistic theory to agitprop politics and doused it all in a thick, dubby, experimental rock stew that landed on numerous Greatest Singles of All Time lists and notched kudos from the likes of Nick Cave and the Minutemen's Mike Watt. Yet the group lasted for only two proper studio albums before surrendering to its own volatility, its members going on to Pigbag, the Slits, Rip Rig + Panic, and Mark Stewart + Maffia (*sic*).

Now, 35 years after their last album, the Pop Group returns to the record bins. Incredibly, *Citizen Zombie* evinces none of the cash-in nostalgia or artistic cobwebs we've come to expect of reunions. Instead, it finds the band as confrontational as ever in tone and execution, with singer Mark Stewart railing against complacent citizens, corrupt pols, corporate malaise, and cultural decay. To reinforce the prevailing vibe of desensitized alienation, one track, "Nations," is even recited in a detached robotic tone ("this message will self-destruct in 10 seconds").

Given the almost claustrophobic nature of the arrangements and production—the album is unrelentingly dense and dubby, the highs consistently trumped by the low end and the voices soaked in echo—it's unlikely that audiophiles will rate *Citizen Zombie* very highly. Multiple listens are required to discern nuance, and even then, the sound has a cavern-like quality.

—Fred Mills

## JAZZ


**DIANA KRALL**  
*Wallflower*

Verve B0020989-02 (CD). 2015. David Foster, prod.; Jochem van der Saag, Jorge Vivo, engs. AAD? TT: 45:20

**PERFORMANCE** ★★★★★  
**SONICS** ★★★★★

What was Diana Krall thinking? Sure, she's known for her sultry, sensuous voice and smooth-as-silk piano, but here, delving into a wide-ranging batch of mostly overplayed pop chestnuts, she rarely adds anything new. And her piano work is sparse (producer and MOR journeyman David Foster tickles ivories on most tracks). Rather than adding new dimension to these songs, à la Annie Lennox, Krall makes them tired. "California Dreamin'" is dreary. Do we ever need to hear "Desperado" or "I Can't Tell You Why" again? And "Alone Again (Naturally)," a soulless duet with Michael Bublé, is a more powerful sleep inducer than Lorazepam.

Krall chooses the G-rated version of "Superstar," and it's lighter than the Carpenters', steering clear of the more interesting PG-13 Delaney and Bonnie original (Bonnie Bramlett co-wrote it with Leon Russell). Krall delivers it at a pace that makes Roberta Flack's take on "First Time Ever I Saw Your Face" seem downright brisk.

Things finally get marginally interesting with track five: Bob Dylan's "Wallflower" is a noble choice, but compared to livelier versions—on the 1973 classic *Doug Sahm and Band* and Dylan's own *Bootleg Series*—Krall's is sleepy-time.

One of the most spirited remakes here is, of all things, Jim Croce's "Operator." But where the author made "You can keep the dime" a heartrending punch line, Krall sounds like she's reading a lyric sheet.

Why remake songs if you can't inject new spirit? Krall may have been putting her heart into this material, but to quote the alternate title of Croce's song, "that's not the way it feels."

—David Sokol


**AI MURAKAMI QUARTET**  
*Conception*

Ai Murakami, drums; Zaid Nasser, alto saxophone; Tardo Hammer, piano; Hassan Shakur, bass  
 Gut String GSR 018 (CD). 2014. Ai Murakami, prod.; Saul Rubin, eng. DDD. TT: 53:47

**PERFORMANCE** ★★★★★  
**SONICS** ★★★★★

Jazz today is global, diverse, and seething with creativity. Committed young players keep expanding the art form. Ai Murakami is one, but unlike most of her peers, she operates inside the tradition. She was born in Japan but has been based in New York since 1998. The music she hears in her head is bebop, but in a version on the leading edge of now.

Murakami plays venerated texts from the middle of the previous century—Tadd Dameron's "On a Misty Night," George Shearing's "Conception"—with exuberant irreverence. Her interpretations prove once again two things about bebop: Its complex energy is unique in its capacity to communicate joy, and its forms are inexhaustible in their openness to individual expression.

Alto saxophonist Zaid Nasser takes incandescent solos in every song. He rampages in burners like Ray Brown's "Ray's Idea" and Randy Weston's "Saucer Eyes." In tunes that in other hands might sound quaint, like "Sweet Lorraine" and "Old Devil Moon," he bears down hard and elucidates tough love. He is wonderfully ragged, always flirting with chaos, then choosing order. Pianist Tardo Hammer is different. He speaks bebop, his native tongue, with measured fluency and poise.

On this project conceived and led by a drummer, there are no indulgent drum solos. Murakami is crisp and selective, but her breaks insert force into all the right places. She is the first reason *Conception* swings like crazy. Her debut recording offers advantages rarely encountered together, like immediate accessibility and long-term depth. —Thomas Conrad



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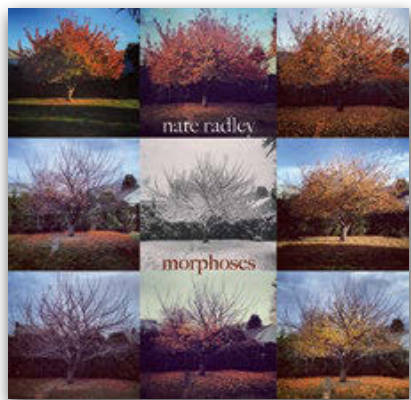
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**NATE RADLEY**  
*Morphoses*

Nate Radley, guitars; Loren Stillman, saxophones;  
Matt Pavolka, bass; Ted Poor, drums  
Fresh Sound New Talent FSNT 452 (CD). 2014. Nate  
Radley, prod.; John Davis, eng. DDD? TT: 60:35

**PERFORMANCE** ★★★★★

**SONICS** ★★★★★

Nate Radley is one of the significant guitarists to enter jazz in the last five years, not because of his technical expertise (guitar chops are cheap these days) but because of his concept. His first two albums, *The Big Eyes* (Stereophile, April 2012) and *Carillon*, were deep in fresh, challenging ideas. With his new recording, his concept has expanded. Radley's street-wise New York jazz has gone country.

Radley has said that he "never really dug country" until recently, when he began to appreciate guitarists like Roy Nichols, Danny Gatton, and Albert Lee, and began to supplement his Gibson 335 with a Fender Telecaster. Tunes like "Sunset Stomp" and "Travis" (for legendary country picker Merle Travis) offer the human tales told in elemental melody, the irresistible hooks, the twang, that make Americana music universal. "Travis," with its overdubbed acoustic and lap steel guitars, has the richness of a string choir.

What makes *Morphoses* distinctive is that its earthiness is filtered through Radley's relativist postmodern jazz sensibility. This is Americana with an edge of emotional ambiguity. There are also pieces in which Radley departs the countryside and returns to the New York streets, to further explore the intense, volatile creative relationship that he and saxophonist Loren Stillman introduced on *The Big Eyes*. These tunes also reveal Radley's increased emphasis on composition and ensemble form. In "Long Notes," for 10 minutes, Radley and Stillman shadow, incite, and elevate one another. "Glow," through-composed, is such an elegant, suggestive arc that it requires no improvisation to be complete. —Thomas Conrad



**WADADA LEO SMITH**  
*The Great Lakes Suites*

Wadada Leo Smith, trumpet; Henry Threadgill, alto  
saxophone, flute, bass flute; John Lindberg, bass;  
Jack DeJohnette, drums  
TUM 041-2 (2 CDs). 2014. Petri Haussila, prod.;  
Robert Musso, Akihiro Nishimura, engs. DDD. TT:  
90:21

**PERFORMANCE** ★★★★★

**SONICS** ★★★★★

Following the gravitas of his *Ten Freedom Summers* (Cuneiform 2012), trumpeter Wadada Leo Smith's four-disc large-ensemble homage to the civil-rights struggle, *The Great Lakes Suites* feels almost like a breather. The sole focus is quartet, but one very different from Smith's Golden Quartet, which always features piano. Here, with just two horn players and rhythm, Smith evokes the vast beauty and awe-inspiring history of the Great Lakes, devoting a suite to each—including Lake St. Clair, northeast of Detroit. The six suites are spread across two discs, and the sound is powerful, clear, matter-of-fact.

The lineup is jaw-dropping: Henry Threadgill is aflame on alto saxophone and flutes; bassist John Lindberg brims with virtuosity, whether playing arco or pizzicato; the great Jack DeJohnette holds it all together with his peerlessly musical drumming. Then, of course, there's Smith, going full-blast on open trumpet, but also coloring deftly with his mute. Early in "Lake Ontario," his entrance against Threadgill's flute is a thing of untrammelled beauty. So is Threadgill's bass flute at the end of "Lake Huron" and the beginning of "Lake Erie," opening a sublime and contemplative space in these turbulent pieces.

Smith has a way of weaving silences into his themes, pausing before the next intense high-note unison or clashing acidic harmony with Threadgill, as DeJohnette and Lindberg carry on their churning rubato. There's an unflinching directness to the music, but also a deep mystery and ambiguity—and, in the coda of "Lake St. Clair," even a touch of funk. —David R. Adler

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# MANUFACTURERS' COMMENTS

**THIS ISSUE:** Pono, Ayre Acoustics, PS Audio, and Bricasti comment on our reviews of their products.

## Pono Player

Editor:

Way back in 1979, when I was a staff producer for Columbia Records, I was asked to produce Jerry Goldsmith's seminal music score for *Star Trek: The Motion Picture*.

I started looking around for something futuristic that would be compatible with the movie's ethos, and while I was at the Audio Engineering Society (AES) convention in downtown Los Angeles, at the Biltmore Hotel, I happened to stumble on a small exhibit in a Sony demo room. They were showing a PCM-1600 digital recording system that processed sound at 16-bit/44.1kHz, as well as a hand-wired prototype digital editor. Don Ellis, the VP of A&R at Columbia Records, okayed the purchase of a PCM-1600 and two Sony  $\frac{3}{4}$ " BVU-200 video recorders to record the live stereo mix for the album, alongside Ampex 16- and 2-track analog tape recorders.

On playback on the scoring stage, I immediately noticed that the PCM-1600, with its limitations of 16 bits and only 44.1kHz sampling, did a reasonably good job of reproducing what it had recorded—that is, without any perceived loss of high frequencies or analog print-through. When it came time to edit and master the score for the album, Sony graciously loaned me their hand-built prototype digital editor, and *Star Trek: The Motion Picture* became the first digitally recorded and edited soundtrack album of a motion-picture music score, four years before the advent of the CD.

Fast-forward 34 years. To celebrate [the film's 35th] anniversary, it was decided to go back to the original 30ips, 16-track analog masters, archive them at 24/192, and do new mixes in high resolution. The resulting mixes brought forth all the excellent room tone and natural reverberation of the 20th Century Fox Scoring Stage that the 16/44.1 recording lacked. It was a revelation.

Around the same time, I attended a reunion concert of the Buffalo Springfield at the Santa Barbara Bowl. I had originally recorded their second album, *Buffalo Springfield Again*, which was when I first made music with Neil Young and Stephen Stills. After the concert, Neil asked me to come backstage, as he had



something that he wanted me to hear.

Neil had this dream, that someday there would be a system that reproduced the music exactly as we heard it in the studio before it became a CD with 22% of our soundfield or, worse, the lovely 3% of MP3, and that was the beginning of Pono.

When it came time to bring Pono to reality, Neil asked me to join him, and I jumped at the opportunity to help bring the sound that we work so very hard to get in the studio into the average Joe's or Jane's home, car, or earphones. I've made extensive listening tests in my studio, comparing the output of an analog 30ips stereo master against the output of the Pono Player and I have to say that it is stunning. The analog circuitry that Charles Hansen and his crew at Ayre Acoustics devised sounds beautiful, with the ability to capture and reproduce the sound accurately, especially in the balanced mode. After a long 35 years, we've finally got a proper audio playback instrument that truly is representative of the music.

One last question to those who say that you don't need more than 16/44.1 or can't hear above 20kHz: Why would any of the artists, producers, and recording engineers be happy with less than they've heard in the studio? High-resolution audio is here to bring back the emotion and joy of listening to music. That's what Pono is all about.

Bruce Botnick  
Pono Music

## Pono Player

Editor:

Thank you very much for the insightful review of the PonoPlayer [in April 2015]. I truly believe that you have captured its essence. Specifically, it is the easiest entry into the world of high-performance audio

of which I am aware. The entire goal of high-performance audio is to tear down the walls between the original music performance and the listener.

The barriers of entry to high-performance audio are normally twofold:

**1) Price:** A high-performance audio system will range in price from several thousand to several hundreds of thousands of dollars. The PonoPlayer delivers the musical satisfaction of systems costing hundred of times more.

**2) Knowledge, skill, and experience:** On the Ayre website, we recommend that people purchase Jim Smith's book, *Get Better Sound*. The reason is that, in my experience, equipment is at most responsible for only half of the final sound quality of a music-playback system. The other half requires knowledge, skill, and experience in myriad areas—room acoustics, vibration control, EMF fields, RFI, mechanical properties of materials—and, perhaps above all, a commitment of time and a passion for experimentation.

In contrast, with a portable player, simply put it in your pocket, put on your headphones, and you're all set. The only tweaking even possible is to replace the stock headphone cables with aftermarket upgrades. And as John Atkinson will no doubt write about in a Follow-Up, the PonoPlayer has a unique balanced mode that raises its performance to an entirely new level. Number one in a field of one.

One point touched on in JA's "Measurements" section highlights the limitations of working with a portable audio player. Specifically, all of the Pono's power comes from a single rechargeable 3.7V lithium-ion battery. This leads to two different difficulties during the design phase:

**1)** With nonportable equipment, current draw is rarely a consideration. Sometimes, a large power amplifier must have attention paid to its heatsinking, to ensure reliability as well as nonhazardous temperatures on exposed surfaces.

With portable equipment, every single milliamp of current drain shortens the battery life. This puts extremely tight constraints on what can be achieved while still maintaining an acceptable playing time between charges.

**2)** The de facto standard output level for portable audio players is 1V RMS. Not



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only is this 6dB lower than specified for home equipment, it is 10–16dB below what is often found in real-world products. Boosting the output level is an easy way to achieve improved signal/noise measurements, and living in the real world of 1V output makes it impossible to match the specifications of stationary equipment.

As JA found, at some point the numbers become meaningless. The ambient noise of our listening situation makes the noise floor of the PonoPlayer a moot point. It still delivers the musical goods: the ability to *feel* the intent of the performer.

Also, I would like to delve into the topic of output impedance. I would kindly ask *Stereophile's* readers to please ignore any “rules of thumb” or other “conventional wisdom” that says that a certain number assigned to the output impedance is “good” or “bad.” Instead, simply let your ears be your guide. The following explains why.

Remember that the audio circuitry of the PonoPlayer is a completely zero-feedback design. Without the artifice of feedback to force the output impedance to a fixed point, it is worth noting

the formula for the output impedance of an emitter follower. Very simply, it is equal to 26 divided by the bias current (expressed in milliamps).

The output stage in the PonoPlayer is a Diamond buffer, essentially taken straight out of Ayre's KXX-R Twenty preamplifier. This circuit in the PonoPlayer idles at about 4mA and runs in class A-A/B. As there are two complementary output devices per phase, at low levels (class A) the output impedance is roughly  $26 \div 4\text{mA} \div 2$  emitter followers = 3.25 ohms.

At higher playback levels, the output stage leaves class-A and enters class-A/B. Then, only one of the transistors is on during part of the audio cycle, so the factor of 2 goes away. But here is the beauty of an open-loop design: the more current that is drawn (eg, from a low-impedance load), the more current passes through the emitter follower, which in turn reduces its output impedance.

The bottom line is that a set of high-impedance cans will be driven by a relatively low output impedance in the range of 3 ohms or so, which is far more than adequate. And if the user connects lower-impedance headphones and/or

drives them at higher and higher levels, the output impedance drops further. It becomes a self-correcting situation so that the PonoPlayer can drive even the lowest-impedance loads without difficulty.

What's more, connecting to the PonoPlayer with balanced cables will connect two separate amplifiers to each transducer, each driven 180° out of phase with the other. This will double the available voltage swing, thus quadrupling the output power (as well as canceling all of the even harmonics and rejecting imperfections in the power supply).

The end result is that the PonoPlayer is the only portable player to date that will drive virtually any headphone to satisfying levels, regardless of impedance or sensitivity, without the need for an external headphone amplifier, especially when used in balanced mode.

Again, thank you for the efforts expended both in the review as well as in the comprehensive measurement suite that *Stereophile* has developed (and continues to) over many decades of fine audio reporting.

Charles Hansen  
Ayre Acoustics

## PS Audio Sprout

Editor:

When you want to reveal the true essence, the gestalt, of anything—go to an artist. Not surprisingly, Herb Reichert has, quite charmingly, gotten to not just Sprout's feature set, but its soul. Playfulness, whimsy, the ability to straight-up boogie—yep, Herb has *nailed* Sprout.

PS Audio has always been about connecting people to music, and at heart, that is all about heart, soul, and fun. Far too often in our oh-so-serious audiophile world, we forget why people connect to music in the first place: it makes them feel—happy, sad, like they want to get up



and shout.

That's what Sprout does. By not taking itself too seriously, it gets out of the way and lets people connect—to Sprout itself, through those two simple knobs; to the music, by conveying tone and rhythm like nobody's business; and to

one another. Isn't that what we all want from music, from audio—a connection to something far greater than ourselves?

Well, that might be getting too serious again. We just wanted regular people who love music to be able to bring it into their homes in an enjoyable, tactile way, without asking them to sacrifice their sanity or the sanctity of their homes. We think Sprout does that.

And, thankfully, so does Herb. Thank you both for your efforts and your insights. You've made us all at PS—and Sprout—very happy!

Scott McGowan, Sales Director  
PS Audio

## Bricasti M28

Editor:

It is, of course, disappointing to receive an unfavorable review. A product designed and voiced at this level is inherently an opinion carefully stated. Michael's review is as well, and we differ. As Michael says, “that's hi-fi.” We strive for fast transient ability and very low distortion. These are the qualities that we feel bring the ability to “hear the room,” the 3D character of the recording space, the soundstage that removes the speakers' locations from the listener's perception. For us, this is the challenge. It is how we design and voice

our systems. We feel that if this can be achieved, then the honesty of the primary musical elements comes along as a matter of course.

When looking at the measured square-wave, *it is, in fact, superior to the reference system.* There is no question regarding the M28's ability to cleanly and quickly reproduce transients. So what accounts for Michael's perception that aspects of the M28's sonic character lack excitement? To us, the answer is the same that we often give, regarding both our M1 and the M28. When a listener is presented with a sound that contains an order of

magnitude less distortion than their reference system, it takes time to hear that as a positive aspect of the sound. Distortion masks the honesty of the recording, but it also adds high-frequency excitement. The additional harmonics add volume, particularly to transient elements and elements that already have a bit of distortion in the recording. But this distortion is not honest, and over time and across different sources, the greater honesty of lower distortion becomes evident and desirable.

Brian Zolner  
Casey Dowdell  
Bricasti Design



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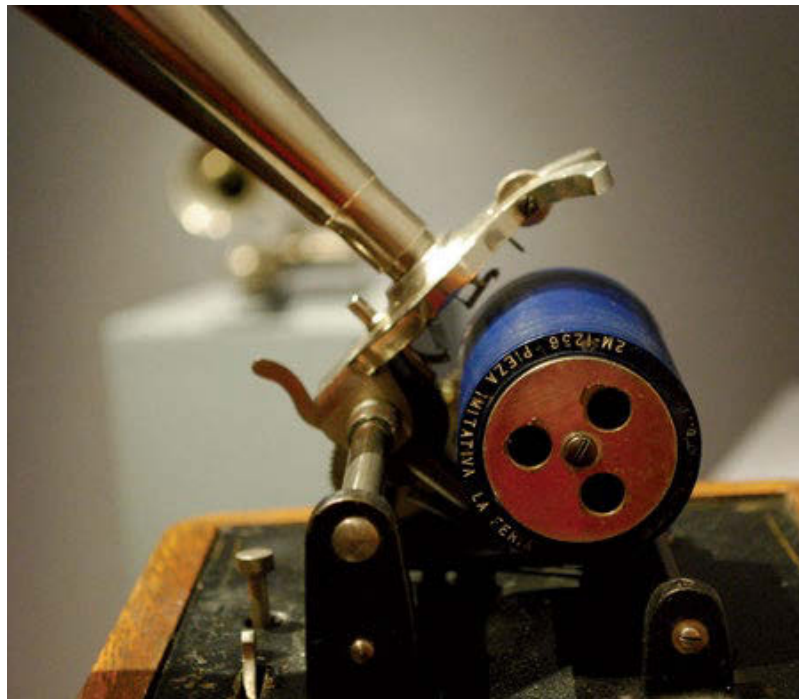
# AURAL BY ROBERT BAIRD ROBERT

## Our Master's Voice

**B**lame it on Thomas Edison and Emil Berliner! In recent years, in a class I teach about the history of recording, I've tried to impress on my students just how amazing it must have been, in the late 19th century, to sit at home, wind up a spring, and, for the first time, hear music coming out of a machine. Suddenly, in June of 1888, Thomas Edison could send to London's Crystal Palace a cylinder recorder and recordist who could then return with a sound recording—for anyone to hear at any time—of 4000 voices singing an excerpt from Handel's *Israel in Egypt*. Previously, if you desired music, there were two choices: play it yourself, or go out and listen to someone else play, most likely on a piano or as part of a brass band.

Before long, however, Emil Berliner came along to challenge Edison's cylinders with his flat discs, and the race was on. Today, as the simple joy of hearing recorded music has turned into a dizzying array of choices, in terms of both seemingly infinite musical subgenres and the constant advance of hardware and technology, one question constantly looms: Are you going to take that next step and buy into the next form of playback technology, or are you going to stand pat with what you know and are comfortable using, and to hell with the next ploy by the music and hardware businesses to grab more of your ducats? Then there's the music. Oh, you may upgrade your gear again (and again), but as for buying *Abbey Road* one more time, let alone listening to new talent, when is enough is enough?

Putting aside the constant changes on the hardware side—the reasons this magazine exists and is still the best in the business—it's the software and the music on it that I speak of here. Once, transitions from old to new forms of playback technology were fairly orderly though not so likable: just about the time you'd completed your LP library, the CD came along. The cycle repeated itself when CDs were replaced, at least for everyone under 50, by downloads. Now the out-with-the-old momentum makes these transitions happen damn near overnight. As the record business has foundered, they've grasped at any bright bits of new promise bubbling up from beneath the murk of their making. In recent years we've seen and heard the SACD (sounded better, cost more), the DVD-Audio (the miracle audio/video format turned epic flop), 5.1-channel surround sound (on which the marketplace has said, Nah), the return of the LP (pay \$25 for an admittedly better-quality version of what once sold for \$5), downloads (MP3s sound flat and compressed), and high-resolution downloads (clearly the



Where the game of choices began to spin. Flat disc records anyone?



future, but only if you're willing to buy new music recorded in hi-rez or pay for the Led Zeppelin catalog one more time).

Each of these formats has or has had its fans. On the fringes are cassette tapes, reel-to-reel 1/4" tape, 45s, 78s, wax cylinders—and, probably, lamp-black recordings on paper, if you have the wherewithal to travel to France and dig around in Parisian attics. Particularly weird to someone like me, who admits to hoarding boxes of

taped bootlegs, is the revival (?) of the lowly cassette among some young bands and cassette-only labels. So cassettes are once again cool because . . . what? They sounded so good to begin with?

While choice is good, the shifting from CDs to downloads to LPs has become a bit much, if only because each format requires different playback hardware. While writing this, I listened to the Talking Heads' *Remain in Light* on LP, *The Essential Lefty Frizzell* on CD, and the Beastie Boys' *Licensed to Ill* as a download. Barring unlimited wealth and space, the obvious solution is to find a mix you can live with: phase in the new while staying loyal to what works with your system. Whether they admit it or not, most audiophiles now use several forms of technology. While everyone has sonic preferences—"You haven't heard the Beatles till you've heard the mono mixes!"—in general, CDs are now the crazy uncle, kept in closets or on discreetly hidden shelves. At my house, LPs are once more the big, lovable space hogs they always were. (And watch that direct sunlight!) Meanwhile, my downloads, a merciful antidote to stacks of vinyl, sit obediently in a clean, brushed-aluminum box, accessible via an easy-to-use interface.

With all the problems in the world today, the decisions of what music to listen to and how to listen to it seem trivial. And they are. But to the audiophile world, and perhaps to parts of the larger world, such decisions are aspects of greater choices: to go forward or to go back; to enter the future or remain in the past. But while the past will always provide the comfort of the known, it's only in the future that we'll discover the fresh, the new, the unexpected. ■

Music critic Robert Baird ([robert.baird@sorc.com](mailto:robert.baird@sorc.com)) welcomes a vibrant discourse on music and musicians.





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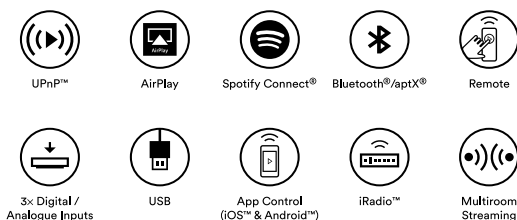


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